HEALTH RELATED QUALITY OF LIFE AFTER PEDIATRIC INTENSIVE CARE UNIT STAY

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I hereby declare that the thesis entitled **"HEALTH RELATED QUALITY OF LIFE AFTER PEDIATRIC INTENSIVE CARE UNIT STAY**" submitted towards partial fulfillment of the requirements for the award of **MD in Pediatrics** degree to BFUHS is a compilation of original work carried out by me under the supervision of **Dr. Siddharth Bhargava**, Associate Professor, Department of Pediatrics, & **Dr. Puneet A Pooni**, Professor and Head, Department of Pediatrics. No part of this thesis has formed the basis for the award of any degree previously.

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LIST OF ABBREVIATIONS

ARDS	Acute Respiratory Distress Syndrome
BMI	Body Mass Index
COVID	Coronavirus Disease
CRP	C - Reactive Protein
DMC	Dayanand Medical College and Hospital
ESR	Erythrocyte Sedimentation Rate
FSS	Functional Status Scale
HRQoL	Health Related Quality Of Life
HSC	Health State Classification
HUI	Health Utilities Index
IAP	Indian Academy Of Pediatrics
LOS	Length Of Stay
LMIC	Low and Middle Income Countries
MIS-C	Multi System Inflammatory Syndrome-Children
NICE	National Institute for Clinical Excellence (NICE)
OPD	Out Patient Department
PIM	Pediatric Index Of Mortality
PRISM	Pediatric Risk Of Mortality
PICU	Paediatric Intensive Care Unit
PIC-P	Post Intensive Care Syndrome in Paediatrics
PMTS	Pediatric Medical Traumatic Stress
QOL	Quality of Life
RESTORE	Randomized Evaluation of Sedation Titration for Respiratory Failure

SCCM	Society Of Critical Care Medicine
S.D.	Standard Deviation
SSP	Short-stay patient
TBI	Traumatic Brain Injury
TACQOL-CF	TNO-AZL Children's Quality of Life Questionnaire Child Form
WHO	World health organization
(rho) or r	Spearman’s correlation coefficient

ABSTRACT

Introduction: Paediatric critical care has taken major strides over the last few decades, resulting in increased survival rates in critically ill. During the past few years, the progressive reduction in pediatric intensive care unit (PICU) mortality rates and the recognition that some children were surviving with poor functional status suggested the need of other quality of care indicators in addition to the traditional PICU outcomes (such as mortality, length of stay, or use of mechanical ventilation). Health Related Quality of Life (HRQoL) is one such tool to assess the overall well being and functional status of children. Hence, this study is being planned to evaluate the quality of life of children after discharge from Paediatric ICU using HRQoL assessment tool.

Aim of Study: To assess the Health Related Quality of Life (HRQoL) outcomes in children on follow up after discharge from the Pediatric ICU.

Materials & Methods: A prospective evaluation of HRQoL within two weeks and at 3 months was done on children from 2 -18 years of age after discharge from the Pediatric ICU of Dayanand Medical College and Hospital, Ludhiana after a minimum stay of 3 days, who were called up for follow up within 2 weeks of discharge and subsequently at 3 months after discharge. On both visits, patients were assessed for their HRQOL which was measured using the HRQoL Questionnaire-Peds Quality of Life Inventory (Version 4.0) .Based on their scores calculated using this tool, children were assessed and categorized for their quality of life and HRQoL will be compared between these 2 visits after discharge. Statistical Analysis-Continuous data was compared with the Students T test and the Mann-Whitney test was used for non parametric variables.

Results: Parents reporting of their children with regards to PICU stay was similar to child reporting. The results were statistically significant in all categories-physical, social, emotional and psychosocial. The most affected domain on follow up in our setup was physical, while social domain was the least affected. The results were the same (parents as well as children).It was observed that a low PRISM score, a higher GCS score at admission, absence of mechanical ventilation and those children who did not require inotropic support during ICU stay had a better quality of life at both points on follow up.

Conclusion: It was observed that the quality of life was better at 2 weeks, and even better at 3 months of follow up after discharge. It was also found out that factors like high PRISM at admission, invasive ventilation, inotropic support, longer duration of PICU stay lead to poor quality of life at follow up.

Keywords: HRQOL, PICU, QOL.

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INTRODUCTION

The main function of intensive care is to support vital functions, awaiting the effects of therapeutic treatments or the natural healing process.

The development of pediatric intensive care units (PICU's) has contributed to improved survival in children requiring ICU admission. As a result of improved survival, new disease patterns cropped up. Awareness of the physical and psychosocial sequalae could lead to changes in acute management as well as long term outcomes. [1]

PICU hospitalization can have a significant impact on children and their families. There has been limited data on the long term recovery of children as per their families following PICU stay. The Integrative Trajectory Model of pediatric Medical Traumatic Stress (PMTS) found out that children and their families can experience traumatic stress responses as a result of a child's serious illness, injury, or exposure to painful, invasive or frightening treatment procedures, and those responses can continue long after the acute event has been over. [2]

Critical illness can be defined as the dependency on one or more forms of technology to sustain vital functions or the involvement of persistent multiple vital organ system. The majority of critically ill children admitted to the PICU show rapid recovery in terms of physical functioning. However, a significant proportion of children are left with prolonged consequences that interfere with normal development, such as psychosocial and neurocognitive deficits. [3-5]

Studies have shown that children may experience multiple physical, cognitive, emotional and social impairments, which can collectively be known as 'Post Intensive Care Syndrome in Pediatrics" (PICs-P).The spectrums of PICs-P manifestations within each domain are varied. To address the emerging evidence of post PICU morbidity in children, a conceptual framework was adapted by Manning et al. It was found that

the residual morbidity in children following critical illness can affect four health domains-physical, cognitive, emotional and social. These domains are influenced by the interplay of the child's pre morbid baseline status, the experience in PICU and of course, the caregiver or the family. [6]

PICs-P Domains	Examples	
Physical Health	Chronic organ dysfunction or failure Technology dependence Chronic pain Feeding problems or malnutrition Fatigue or weakness Sleep disturbances.	Health-Related Quality of Life
Cognitive Health	Reduced attention Memory problems Decreased communication abilities Decreased school achievement.	
Emotional Health	Depression Post-traumatic stress symptoms and disorder Anxiety Delusional memories and fears Behavioral problems Sleep disturbances.	
Social Health	Loss of peer relationships Loss of social identity School absenteeism Decreased participation Strained family relationships Social anxiety.	
PICs-F (Family)	Parent, caretaker or sibling psychiatric complications Job loss Food or housing insecurity Strained family relationships Family financial strain	

FIGURE NO- 1 DOMAINS OF PIC-P AND EXAMPLES.

In 1948, the World Health Organization defined health as 'a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity'. Quality of life (QoL) is defined as an individual's perception of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns. HRQoL is defined as QoL in which a dimension of personal judgment over one's health and disease is added. In case of children, HRQoL is influenced also by

actors such as the ability to participate in peer groups and the ability to keep up with developmental activities. [7,8]

HRQoL can be measured across all diseases and health conditions (generic) or any disease specifically. Generic instruments provide an overview of the perceived health, health behaviour, and subjective well-being of the person concerned, and allow different diseases and conditions to be compared. However, it has been studied that disease specific tools are more useful as they are more sensitive to those particular disease patterns. [9-11]

Also, they allow the core aspects to be identified that are most relevant to enhancing the HRQoL of individuals affected by a certain disease. For example, Traumatic Brain Injury can negatively affect many different areas of HRQoL such as cognition and educational competences (e.g. executive functions, language, attention, processing speed), emotions (e.g. reduced self-esteem), social life (e.g. reduced social awareness), and lead to serious changes in lifestyle (e.g. reduced independence). [10]

Identification of the specific elements of HRQL most commonly affected by an ICU stay may aid in the development of interventions targeted to those areas to improve long-term outcomes among critically ill children. As HRQL is inherently a comprehensive measure that incorporates many aspects of a child's functioning and well-being, it is a good measure of overall health outcomes. Because HRQL measures incorporate many different areas of functioning, however, identifying changes in overall HRQL does not offer specific insight into how declines can be minimized and recovery optimized [11]. No studies have evaluated which of the individual components that comprise comprehensive HRQL measures contribute most to overall score declines following critical care. [12]

In children, HRQoL is also influenced by factors, such as the ability to participate in peer groups and the ability to keep up with developmental activities. Difficulties in measuring HRQoL in children include a lack of consensus on suitable instruments and the need for different instruments in different age groups, as well as need for parental report in younger age groups. [1]

Basically, HRQOL measures quantify how a patient's illness and medical treatments have an effect on their overall physical, social, emotional and psychological well-being. Three types of measures are commonly used to assess HRQOL:

1. Dimension-specific measures focus on a particular element of well-being, such as psychological health.
2. Disease-specific HRQOL includes multiple dimensions of health that pertain to a certain illness.
3. Generic measures are used across populations with different diseases and usually measure physical, psychological and social domains of health. [13]

In our study, we have used generic measures for HRQOL.

Critical illnesses and their requisite therapies expose children to extreme stressors, including pain from invasive procedures, respiratory insufficiency, delirium with potential associated psychotic experiences, and separation from their families. Critical illnesses are also, by definition, life-threatening. Therefore, psychiatric disorders, which can be triggered by exposure to extreme stressors in a vulnerable population, and are highly prevalent in children exposed to traumatic events, are a potential concern in pediatric critical illness survivors. The recognition of psychological distress in these children is important for several reasons. Mental disorders carry an increased risk of suicide, and this risk, as well as the persistence of symptoms, can continue into adulthood. Also, psychiatric disorders in this population may impair

functioning in school, family and social roles, lead to lags in development and negatively impact HRQOL. [13]

When selecting a HRQL measure, it is important to consider the following six factors:

1. Psychometric properties: reliability consists of internal consistency and reproducibility. Validity assesses the extent to which an instrument measures the variable it is intended to measure.

2. Responsiveness or sensitivity to change: does the instrument detect change after an intervention over time? Responsiveness is examined in longitudinal studies that compare the outcomes of a group expected to change to one that is not.

3. Interpretability of HRQL scores: it is important to be able to translate a quantitative score or change in scores to a qualitative category or to an external measure that has a familiar meaning. An instrument's interpretability is enhanced when there are normative data from a representative sample of the general population or data from patients with specific clinical conditions

.

4. Response burden or the time, effort and other demands that are placed on the respondent completing the instrument: completing the instrument should not create undue physical or emotional strain on the respondent.

5. Mode of administration: self-report is considered to be the gold standard in HRQL measurement, and children are assumed to have a unique awareness of their own health. Most of the HRQL measures have both child and proxy versions; however, the age at which self report is available varies. Proxy investigation is second best because proxy reports do not always correspond with self-evaluations.

6. Instrument adaptation: consider if the instrument has been adapted or translated for use with children who differ from the original population for which it was developed in terms of culture or language. [14,15]

Trends in HRQL identified in the studies reviewed suggest significant ongoing morbidity for children surviving critical illness. Key determinants of poor HRQOL outcomes after intensive care unit stay include reason for PICU admission (sepsis, meningoencephalitis, trauma), chronic comorbid conditions, treatments received (prolonged cardiopulmonary resuscitation, longer duration of stay, invasive technology), psychological outcomes (post-traumatic stress disorder, parent anxiety, depression) and social and environmental characteristics (low socioeconomic status, parental education and functioning). Significant impact on HRQL has been demonstrated in acute and chronic critical illness. Thus, it is mandatory that future pediatric critical care studies should include both mortality as well as long-term HRQL measurements to truly ascertain the full impact of critical illness in children. [16]

How did studies start coming up for measuring the QOL in children following PICU stay?--The increased interest arises from the dynamic epidemiology of children's diseases and recent advances in treatment options.

Several previous studies revealed good QOL in majority of children after treatment in pediatric intensive care unit (PICU). The preadmission co-morbid status was found to be an important denominator of QOL after intensive care, due to its continuous impact on patients' condition. Although the evaluation of long term. QOL is more significant when put in the context of patients' pre-morbid status, the preadmission data were collected only in a few studies. [15-18]

There is accumulating evidence of increased risk of psychopathology, particularly but not exclusively posttraumatic stress disorder (PTSD), in children and parents following PICU admission. Critical illness impacts on parenting and parental PTSD is associated with poorer psychological recovery in the child. Although National Institute for Clinical Excellence (NICE) Guidelines advocate continued monitoring and support of patients and families after intensive care treatment, follow-up is infrequent. Mothers favour follow-up by the PICU team to talk through the admission and believe that this may be psychologically beneficial. However, little work has evaluated the effectiveness of psychological interventions. [19-22]

Interest in measuring quality of life in relation to health care has increased in recent years. Intensive care medicine has increased the survival of critically ill patients, but at the same time requires expensive equipment and a large staff. The high costs of care are compelling Intensive Care Units in different set-ups to objectively evaluate and document their results. Success and utility of intensive care is generally presented as mortality rate adjusted for severity of illness, disregarding long term survival and functional outcome. Longitudinal assessment of morbidity change and health related quality of life (HRQOL) have become important supplementary outcome measures of mortality rates. Most of the instruments used for evaluation of HRQOL are questionnaires designed for adult use. Few studies addressing the issue in pediatric population have used a generic multi-attribute health status classification for children which includes both type and severity of sequelae. [23]

Most of the available literature describes QOL of adult patients with few focusing on pediatric population. Similar studies are lacking in Indian set-up. Hospitalization in PICU places children at increased risk of persistent psychological and behavioral difficulties following discharge, besides physical impact. Despite tremendous advances in medical

technology and treatment regimes, approximately 25% of children demonstrate negative psychological and behavioral outcomes within the first year post-discharge. It is necessary that a wider variety of risk factors and outcome indicators be explored in examining long-term psychological morbidity to identify areas for future health promotion and clinical intervention. [2]

Additionally, many children admitted to the PICU have chronic course of disease, with functional disability and impaired HRQoL. Thus, it is extremely important to assess the benefits of intensive care in these children by assessing the changes in their health status at certain periodic intervals after discharge. Several studies evaluated the HRQoL of children admitted to the PICU but few have provided a prospective evaluation of changes after PICU discharge.

This study aims to create new information regarding the magnitude and duration of psychological and behavioral disturbances among children admitted to PICUs, ultimately helping in devising preventive measures.

Specifically, we examined a broader array of age-appropriate, psychological and behavioral response indicators than have been used previously, explore parents' and children's perceptions of their well-being, and identify risk factors that may impact post-PICU recovery.

PICU follow up clinics are being set up in several tertiary care centers to identify basic problems that arise after ICU stay in children as well as their parents. These clinics consist of a multidisciplinary team that supports the children and their families to tide through the period after hospital stay. [24]

Data from the Indian subcontinent on this topic is scarce, although Western studies are available. Hence this study was undertaken to assess this newer aspect of critical care. Also, assessment of the HRQoL in follow up patients of PICU could additionally help in changes in management during the acute stay. In the context of low- and

middle-income countries (LMICs), where there is often limited access to PICU care, it is particularly important to ensure that resources are used rationally.

Therefore, this study was planned to evaluate an important outcome measure of children treated in PICU i.e. Health Related Quality Of Life.[25]

AIMS AND OBJECTIVES

1. To study the health related quality of life in children after discharge from Pediatric ICU.
2. To study the factors during PICU stay which affect the Health Related Quality of Life of children on follow up.

REVIEW OF LITERATURE

Pediatric critical care represents a perfect combination of knowledge and technologies. In the developed countries, there is already a well established system of handling pediatric emergencies and intensive care system.

Early intensive care has lead to improved outcome and decreased mortality and morbidity in pediatric age groups in the recent years. However, in the developing countries, intensive care facilities are still limited. PICU setups in India require trained personnel as well as finances. Caring for critically ill pediatric patients is demanding and outcome is directly dependent on the training level and the expertise of treating physician as well as availability of facilities. PICU can improve the quality of pediatric care in general and, if properly organized, can effectively treat the severe complications of high burden diseases, such as diarrhea, severe dengue, severe malaria, and respiratory distress using low-cost interventions. [26]

Children having respiratory distress, acute neurological deterioration, cardiovascular compromise or life threatening traumatic injuries constitute the most common reason for admissions in PICU. Children admitted to the PICU usually have multi organ involvement. These patients require a very high level of monitoring of vital signs and other body functions and support to organ functions. The main objective of the pediatric intensive care is to lower the mortality as well as the restoration of the child's health. It also minimizes the anxiety, pain, further complications but also provides guidance and comfort to the family. However, increased survival has also translated to increased morbidity among survivors. Risk factors for acquiring functional and cognitive disability were trauma, oncologic and neurologic primary diagnoses, unscheduled admission to the PICU, need for mechanical ventilation, renal replacement therapy, cardiopulmonary resuscitation or extracorporeal membrane oxygenation. Therefore, post-discharge

morbidity, and specifically, new neurologic morbidity, has become a more relevant and meaningful outcome than mortality in the contemporary era of PICU care. The knowledge of epidemiological profile and the prevalence of various clinical disorders in critically ill children can help in planning and optimal use of various intensive care and emergency services for a population group. [27]

Fraser j et al conducted a study in some district hospitals in England from November 2000 to August 2002. Data collected from those hospitals was compared with the data collected from the regional hospital's ICUs from November 2000 and March 2002. The data recorded included variables required to calculate PIMs score, diagnosis, demographic variables, level of dependency and outcome.

The level of dependency in PICU's was classified as-

- Level 1 of dependency – high dependency.
- Level 2 of dependency – Intensive care associated with ventilation.
- Level 3 of dependency – level 2 with additional therapeutic procedures or need for inotropic support.
- Level 4 of dependency – level 3 along with a need of renal replacement therapy or extracorporeal membrane oxygenation.[28]

Pediatric Intensive Care Units (PICUs) were introduced in the lower- and middle-income countries (LMICs) in the initial 1990's. Some countries in Africa and south-east Asia still do not have a dedicated PICU. Though pediatric intensive care practices were introduced into India in the 1980's, early units consisted of a simple 'treatment room" and they consequently lacked the constant monitoring of vital signs, respiratory or hemodynamic support which are required in a PICU. [29]

Currently, there are more than 100 dedicated PICUs in the private and public sectors in India. With growth in pediatric critical care services in

India, there has been a parallel growth in academic medicine in pediatric critical care in India. Thus, the need for studying the quality of life of children after their PICU stay becomes mandatory. [23]

Over the past 20 years, there has been a significant progress made in the field of pediatric critical care and the services offered in PICUs in India. The pediatric critical care community in India has recognized obvious differences in profiles of critical illnesses and patients between Indian subcontinent and the West. Therefore there is a growing interest in generating scientific evidence through local research which would be applicable to critically ill children in the Indian subcontinent. [23]

Iyuha and Poobuni defined pediatric intensive care (PICU) as that part of the hospital where severely ill pediatric patients who require advanced airway, respiratory, and hemodynamic supports are usually admitted with the aim of achieving an outcome better than if the patients were admitted into other parts of the hospital. Conditions that necessitate the application of special technological needs, monitoring, complex interventions or treatment including medications associated with the disease, are all part of PICU settings. Care of critically ill children remains one of the most demanding and challenging aspects in the field of pediatrics. The principle objective of Pediatric critical care is not only to decrease the mortality, but also to restore the child to normal self in all walks of life, as far as possible. [30]

Interest in measuring quality of life in relation to health care has increased in recent years. This is primarily because the survival rate has increased because of better facilities. The high costs of care are compelling Intensive Care Units in different set-ups to objectively evaluate and project their results in terms of treatment success and imparting long term quality of life. Success and utility of intensive care is generally presented as mortality rate adjusted for severity of illness, disregarding long term survival and functional outcome. Longitudinal assessment of morbidity change and health related quality of life

(HRQOL) have become important supplementary outcome measures of mortality rates. Most of the instruments used for evaluation of HRQOL are questionnaires designed for adult use. Few studies addressing the issue in pediatric population have used a generic multi-attribute health status classification for children which includes both type and severity of sequelae. [23]

PRISM SCORE - The Pediatric Risk Of Mortality scoring system is a revision of the Physiological Stability Index (PSI) to assess the severity of illness in the pediatric population. The PRISM is used to compare and evaluate performance and resource use amongst various PICUs. It is based on 17 physiological variables subdivided into 26 ranges. The PRISM has a constant relation between the number of organ systems involved and the mortality risk in a given PICU at 12 and 24 hours. Scoring systems such as the Pediatric Risk of Mortality (PRISM) score and Pediatric Index of Mortality (PIM) are widely used in pediatric intensive care. These are third generation scoring systems that allow assessment of the severity of illness and mortality risk adjustment in heterogeneous groups of patients in an objective manner. The purpose of their usage varies, and may include comparison of severity of illness between different treatment arms in clinical trials and comparison of quality of care between pediatric intensive care units (PICUs) using standardised (i.e, severity of illness adjusted) mortality rates. Both the PRISM and PIM scoring system have been developed and carefully validated in tertiary PICU. [31-33]

PRISM III	PIM 2	PIM 3
SBP (mmHg)	Absolute (SBP-120)	SBP at admission
Heart rate (/min)	Pupils fixed to light (Y/N)	Pupils fixed to light (Y/N)
Body temperature (°C)	FiO_2X100/PaO_2 (mmHg)	FiO_2X100/PaO_2 (mmHg)
Pupil reflex	Absolute (base excess)	Absolute (base excess)
Mental status	Mechanical ventilation	Mechanical ventilation in the first hour (Y/N)
Total CO_2 (mmHg)	Elective admission (Y/N)	Elective admission (Y/N)
pH	Recovery post procedure	Recovery post procedure
$PaCO_2$ (mmHg)	Bypass (Y/N)	From bypass cardiac surgery
Glucose (mg/dl)		From non-bypass cardiac surgery
Potassium (mEq/l)		From non-cardiac procedure
Creatinine (mg/dl)	Risk factor[a]	Risk factor[b]
BUN (mg/dl)	Low-risk diagnosis	Low-risk diagnosis
White blood cell	High-risk diagnosis	High-risk diagnosis
Prothrombin time		Very high-risk diagnosis
Partial thrombin time		
Platelets		

FIGURE NO 2- TABLE SHOWING VARIOUS COMPONENTS OF PRISM AND PIM SCORES.

Medical and technological advances over the last several decades have resulted in the lowest rates of mortality in the pediatric intensive care unit (PICU). Therefore, mortality alone is no longer a sufficient outcome measure for assessing the efficacy of pediatric critical care interventions. Instead, outcomes in pediatric critical care have come to focus on morbidity that exists at and after discharge from the PICU. Risk factors for development of these morbidities include younger age, lower socioeconomic status, increased number of invasive procedures or interventions, type of illness, and increased benzodiazepine and narcotic administration. A minority of PICU survivors had reported physical morbidities. Approximately 10% of patients had a decline in mobility a year after PICU discharge. It was noted that those with higher severity of illness and high number of invasive procedures had a higher prevalence of PTSD. In a PICU population with average IQ

compared to a healthy control group, PICU survivors scored significantly lower in measures of verbal and visual recall and recognition memory, spatial working memory capacity, and visual sustained attention. In academic questionnaires completed by teachers. PICU survivor population showed academic deterioration, difficulty with schoolwork and attention problems. [34]

Davidson and Harvey defined Post-intensive care syndrome (PICS) as a collection of health disorders in patients who survive critical illness and intensive care and includes new or worsening impairments in physical, cognitive and/or mental health status. PICS can occur not just in patients but in their family members (called PICS-F) as well, and may persist after discharge. It is estimated that at least one-third of ICU patients and their families experience PICS or PICS-F. Incidence is as high as 50% among patients diagnosed with sepsis or acute respiratory distress syndrome or patients on a mechanical ventilator for more than 5 days (Davidson, Harvey & Schuller, 2013). [35]

As a result, the Society of Critical Care Medicine (SCCM) launched a quality improvement initiative (the ABDEF bundle) that aims to mitigate PICS. The ABCDEF bundle stands for: Assess, Prevent and Manage Pain; Both Spontaneous Awakening Trials and Spontaneous Breathing Trials; Choice of Analgesia and Sedation; Delirium: Assess, Prevent and Manage; Early Mobility and Exercise; and Family Engagement and Empowerment. These factors have been found to affect the long term outcome of children post PICU stay.

Colville et al. conducted a prospective cohort study in which they studied children's self reported quality of life after PICU stay. The assessment tool used was the Pediatric Quality of Life Inventory (PedsQL). It was hypothesized that children's self-report of HRQOL, after treatment in the PICU, would initially be lower than that of healthy children, but would improve over time. The setting was a 21-bed ICU in a tertiary Children's Hospital, in an inner city area. Families of surviving

children, aged over 7 yr and consecutively admitted over an 18-month period, were approached by letter, 6 wk after discharge from PICU, to take part in the research project. Children were excluded if they had significant learning difficulties, or if they were not registered with a general practitioner. The lower age limit of 7 yr was determined by the requirements of the main study. During the initial face to face interview, 3 months after discharge, children completed the PedsQL and the Children's Revised Impact of Event Scale (CRIES-8), which measures posttraumatic stress symptomatology. A year after discharge, the children were contacted by post and asked to complete the CRIES-8 and PedsQL again. If they did not return the questionnaires after a second mailing, they were given the option of providing their responses to the researcher over the telephone, or in the course of an outpatient attendance. The PedsQL has been recommended for its psychometric properties and brevity, and for the wide age range it covers, in two recent reviews of measures of HRQOL in children. [27,28] It has also been shown, in a number of studies internationally, to discriminate between healthy children and those with a wide range of health conditions, including asthma, cancer, and diabetes. Children's scores on the PedsQL were compared with the national norms available for healthy children in the United Kingdom by means of a series of Student's t tests, in accordance with standard methodology in this field.[33] Differences in total and subscale scores between 3 months and 1 yr were examined using paired t tests, for the children with complete data at both time points. At 3 months post-discharge, the mean total Pediatric Quality of Life Inventory score reported by the PICU group was lower than that reported in the literature for a non-clinical community sample (PICU mean=79.1 v/s community mean=83.9, p=0.003), but by 1 year, they were comparable (82.2,p=0.388). [36]

Janet E Rennick et al conducted Caring Intensively -a mixed methods multi-site prospective cohort study that aimed to examine children's

psychological and behavioural responses over a 3-year period following PICU hospitalization. In this study, part of the qualitative arm of Caring Intensively, an interpretive descriptive design was used to explore children's recovery one year post-discharge. The Caring Intensively study included English and French speaking children aged 3–12 years who were admitted to the PICU for a minimum of 24 hours, and their parents. Children who had undergone a previous PICU admission, or who experienced a severe brain injury that prevented them from responding to standardized measures (used in the quantitative arm) were excluded. Purposive sampling was used to select a sample representative of the overall study cohort. We selectively included families of children representing a variety of ages, PICU lengths of stay, diagnostic categories and hospital sites. Families were contacted ~11 months post-PICU discharge to schedule a year-1 follow-up interview. Interviews were conducted between 12 and 15 months post-PICU discharge. The experience of a PICU admission continued to have a significant impact on all participants at one year post-discharge. Parents remembered the PICU hospitalization like it had just happened yesterday, and related vivid and emotionally charged accounts of their own and their children's experiences. The psychological impact of individual family members' experiences led to changes in their sense of self which, in turn, impacted family dynamics. PICU memories and reminders impacted participants' perceptions of childhood health and illness and resulted in increased vigilance. Parents and siblings demonstrated increased concern for the child survivor's health, and the experience of long absences and new or altered care giving roles resulted in changes in relationships and family dynamics. [37]

Toddlers and preschool children have been identified as being at risk for post-hospital behavioural sequelae, especially when confronted with an unanticipated intensive care unit (ICU) hospitalization. The strongest evidence to date supports that, for families of ICU patients,

communication and information help minimize adverse outcomes. What doctors and the nursing staff say, how they say it, how soon, how often, and how it is understood by patients and families are factors that affect long-term consequences of critical illness. [38]

A study conducted in PGIMER Chandigarh on HRQOL at one year of follow up revealed favourable outcomes at 1 year of follow up, with worsening seen primary in neurological patients. It was concluded that overall health status at one year after ICU discharge is significantly affected by the health status before admission. In spite of large number of health impairment preceding the present illness, two thirds of the patients had improved at one year. Worsening was noted in relation to the neurological illness and their sequelae. The domain of emotion and pain needs more attention as a part of ICU care. [24]

Knoester et al conducted a prospective cohort study in which HRQoL was assessed with the TNO-AZL Preschool Children Quality of Life Questionnaire (TAPQOL-PF) for children aged 1 to 6 years of age, the TNO-AZL Children's Quality of Life Questionnaire Parent Form (TACQOL-PF) for children aged 6 to 12 years of age, and the TNO-AZL Children's Quality of Life Questionnaire Child Form (TACQOL-CF) for children aged 8 to 15 years of age. The studied patients were compared with age appropriate normative data using non-parametric tests and effect sizes. 31 and 27 children and 55 and 50 parents completed questionnaires respectively three and nine months after discharge. In 1–6 year old children parents reported more lung problems (3 and 9 months), worse liveliness (9 months) and better appetite and problem behaviour (3 months); in 6–12 year old children parents reported worse motor functioning (3 months); and 12–15 year old adolescents reported worse motor functioning (3 months). Large effect sizes indicating clinical significant differences in HRQoL with healthy control subjects were found on more domains. In this small group of PICU survivors differences in HRQoL with the normative

population exist three and nine months after discharge. Calculated effect sizes were smaller nine months after discharge. These changes suggest that HRQoL improves over time. More research is necessary but we believe that HRQoL assessment should be incorporated in follow-up programs of PICU survivors. It was evaluated previously healthy PICU patients at 3 and 9 months after discharge from their illness and found both patients and parents reported worse mobility at 3 months but not at 9 months. [1]

Debbie E Long et al conducted a study on the prospective clinical practices that need to be there in PICU follow up. Most children are surviving critical illness in highly resourced pediatric intensive care units (PICUs). But little heed is paid to the fact that many of these children are left with multiple health problems that affects their development in their growing years. Clinically, there are no recommendations for the assessment and follow-up of children with critical illness as exists for the premature neonatal and congenital heart disease populations. In research studies, primary and secondary outcomes are largely assessed at or prior to hospital discharge, disregarding post-hospital outcomes important to PICU stakeholders. Incorporating longer term outcomes into clinical and research programs, however, can no longer be overlooked. Barriers to outcomes assessments are varied and generalized v/s individualized, but some PICU centers are discovering how to overcome them and are providing this service to families—sometimes specific populations—in need. Research programs and funders are increasingly recognizing the value and need to assess long-term outcomes post-PICU. PICUs should consider development of a multicenter, multinational collaborative to assess clinical outcomes and optimize care delivery and patient and family outcomes. The aim of this review was to present the potential considerations of implementing long-term clinical follow-up following pediatric critical illness. While it would make sense to prioritize the child when considering who should be followed up, evidence strongly

supports also following up parents and families. It is well established that child developmental outcomes are influenced by a complex interplay of multiple factors including parental and family circumstances and the environment they are being discharged into, having more of an influence on outcome than just illness/injury and treatment factors alone. Therefore, every child should ideally be evaluated as a candidate for long-term follow-up based their individual circumstances, rather than just a period of time they received mechanical ventilation or a diagnostic group. Unfortunately, many services will not have the financial or human resources to follow-up every child. Therefore, consideration of several risk factors for poorer outcomes should be considered. [39]

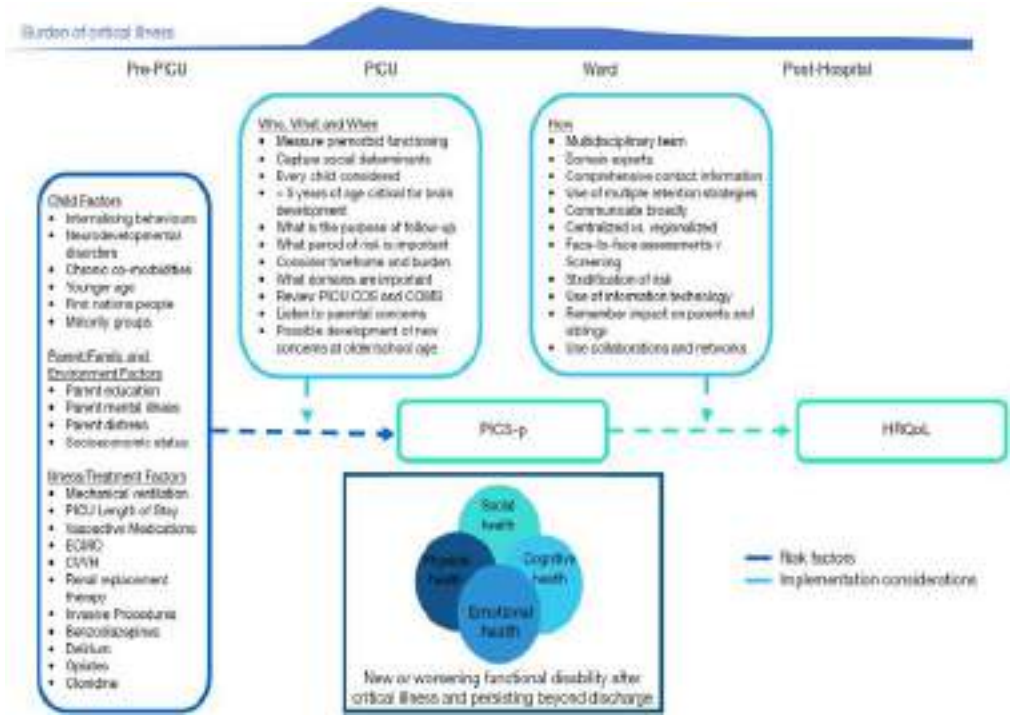

FIGURE NO 3 –CONCEPTUAL FRAMEWORK FOR PIC-P.

In the era of COVID-19, we have been forced to explore other methods to support ICU follow-up, consisting mostly of online services or telephonically Jalilian et al comments that opportunities exist for multiple technologies to help extend healthcare delivery reduce costs;

improve the quality of care, and the patient experience. With advantages in health information technology, telemedicine, digital health and remote monitoring, there has been increasing use of these technologies to facilitate patient-clinician communication, track disease, intervene earlier for symptom management, and provide educational support to patients beyond the walls of the ICU and follow-up service. Such digital technologies could address some of the current barriers to ICU follow-up by, increasing accessibility, early recognition of impairment, reduction of hospital readmission, removal of financial and societal barriers to recovery, and understanding of the home environment. Alternatively, some families may lack access to internet resources needed for a secure telemedicine format. Telephone follow-up also remains a feasible method of contacting patients and families, particularly those who are difficult to assess due to remoteness or lack of other technologies. [39-41]

Cunha et al conducted a prospective evaluation of HRQoL at admission and 6 months later with children aged 6 years or more, admitted to three tertiary pediatric intensive care units (PICUs) from May 2002 to June 2004. HRQoL was measured using Health Utilities Index Mark 3 (HUI3) questionnaire, given to a child's proxy. From the 517 eligible admissions, 44 children died in the PICU (8.5%) and 320 cases were evaluated at admission; among those, follow-up data were available in 252 cases. There were no statistically significant differences between preadmission and follow-up HUI3 global scores (medians [interquartile range] of 0.86 [0.42- 1.00] and 0.83 [0.45-1.00]; p = 0.674, respectively). At the individual level, 21% of children had their HRQoL unchanged; improvement was seen in 40% and deterioration in 38% of the cases. Severe disability before admission (HUI3 global score<0.70) was present in 36% of the cases, with improvement at the 6-month follow-up in 60% of them. Among those with deterioration of HRQoL at follow-up, 45% were trauma victims.

Although the HRQoL was globally similar in both evaluations, several differences were found at the individual level. Children with low preadmission HRQoL (severe disability) may benefit from pediatric intensive care, since many of these children improved their HRQoL compared to preadmission status. [42]

Gemke and Bonsel et al conducted a study in which survival and state of health were assessed one year after discharge in 468 children admitted to an intensive care unit (ICU). ICU mortality was 7/5%, cumulative hospital mortality 8-3%, and one year mortality 10.5%. An established six domain health status classification was used, comprising sensation, mobility, emotion, cognition, self care, and pain to determine the presence, type, and severity of chronic health impairment. This classification has not been validated for infants, who were therefore excluded. After one year, of the 254 patients eligible for analysis, 80 (31.5%) had no overall health impairment preceding admission; of these, 11 had died in ICU and 69 were long term survivors, whom 45 recovered to perfect health. There was overall health impairment (1 affected domain) preceding admission in 174 of 254 patients (68.50/6). However, after one year, overall state of health was improved or equal to the preadmission state in 164 of 226 survivors (72-6%). In domain-specific health, the proportion improving or remaining unchanged varied from 77-9% (emotional functions) to 89-4% (mobility and pain). Consequently, despite the large number with health impairment before admission, cumulative one year survival was favourable and health status in three quarters of the population was preserved. [43]

A cluster randomized trial was conducted by Watson and Asaro et al to study the risk factors for functional decline and impaired quality of life in pediatric patients after respiratory failure. Functional status at baseline, discharge, and 6 months after pediatric ICU discharge and HRQL 6 months after discharge in 2-week to 17-year olds mechanically

ventilated for acute respiratory failure in the RESTORE (Randomized Evaluation of Sedation Titration for Respiratory Failure) trial was measured. The scale used was Infant and Toddler Quality of Life Inventory. We assessed HRQL via Infant and Toddler Quality of Life Questionnaire-97 (2 yr old) or Pediatric Quality of Life Inventory (>2 yr old). Patients with normal baseline function were classified as having impaired HRQL if scores were greater than 1 SD below mean norms for Infant and Toddler Quality of Life Questionnaire-97 growth and development or Pediatric Quality of Life Inventory total score.

One-fifth (n = 192) of 949 patients declined in function from baseline to post discharge; 20% (55/271) had impaired growth and development; 19% (64/343) had impaired HRQL. In multivariable analyses, decline in function was associated with baseline impaired function, prematurity, cancer, respiratory failure etiology, ventilation duration, and clonidine (odds ratio [OR]=2.14; 95% confidence interval [CI]=0.22–3.76). Independent predictors of impaired growth and development included methadone (OR=2.27; 95% CI=1.18–4.36) and inadequate pain management (OR=2.94; 95% CI=1.39–6.19). Impaired HRQL was associated with older age, non-white or Hispanic race, cancer, and inadequate sedation management (OR=3.15; 95% CI=1.74–5.72). The conclusion was that post discharge morbidity after respiratory failure is common and associated with admission factors, exposure to critical care therapies, and pain and sedation management.

Watson et al studied the risk factors associated with a decrease in functional status of children with respiratory failure. Trauma and primary neurologic diagnoses were identified as risk factors for acquiring functional and cognitive disability. Treatment risk factors are considered as the most modifiable, therefore clinical trials in this area will potentially have the most impact. Invasive mechanical ventilation and prolonged PICU length of stay have been identified as independent risk factors for poor long-term functioning. However, as

Woodruff and Choong comment, it is difficult to separate illness and treatment factors, as intensity and duration of therapies is related to illness severity. Other treatments include vasoactive medications, extracorporeal membrane oxygenation (ECMO), renal replacement therapy, and cardiopulmonary resuscitation, again reflecting an increased severity of illness. Additionally, tight glycemic control and withholding parental nutrition in the first week of PICU admission was associated with improved executive functioning, in particular inhibitory control up to 4 years following PICU admission. [44,45]

Ambuhel et al conducted a prospective follow-up study with telephone interview 1 and 2 years after discharge in a 12 bedded pediatric and neonatal intensive care unit. Four domains of quality of life (physical function, role function, social-emotional function and health problem) were recorded by calculating the health state classification (HSC) index. Outcome was classified good (HSC 1.0–0.7), moderate (HSC 0.69–0.3), poor (HSC 0.29–0) and very poor (HSC<0). Data on hospital admission, intensive care, pediatric mortality scores and data of short and long term outcome were prospectively collected. Institutional ethics committee clearance for data collection and telephone interview was obtained and parents/guardians were approached during intensive care admission for written informed consent. Demographic data were collected on all children including parameters such as age, gender and length of stay (LOS). Clinical data were collected such as intubation rate, length of intubation (LOI) and main diagnosis on admission using 6 different groups: respiratory, cardiovascular (excluding cardiac surgery), postoperative (including cardiac surgery), neurology, accident (including head trauma) and medical. Further, risk of mortality using the pediatric index for mortality (PIM) was obtained within the first hour of PICU admission. 661 patients were admitted to the PICU in the year 2001 with mortality within the unit of 3.9%. Over 2 years follow-up there were 21 additional deaths (3.2%). 574 patients could be followed up after 1 year and 464 patients after 2 years. After two years the outcome

was good in 77%, moderate in 15% and poor in 8%. Patients with respiratory disease had the best outcome, similar to those admitted for neurological and medical reasons. Patients admitted for postoperative care and for cardiovascular disease had a poorer quality of life. 31% of the children had pre existing health care problems and 21% of all patients had new chronic disease after intensive care. It was concluded that the majority of survivors admitted to the PICU have a good outcome. The overall mortality rate doubled if assessed two years after discharge. [46]

A prospective, multicenter study involving nine general ICUs in Portugal was conducted in which alll patients with a length of stay >48 hours were invited to participate in a 6-month follow-up after ICU discharge by answering a set of structured questionnaires, including EuroQol 5-Dimensions and ICU memory tool. A set of structured questionnaires, including the EuroQol 5-Dimensions (EQ-5D), and ICU memory tool, was mailed to the patients 6 months after ICU discharge. Additional questions were added to these questionnaires, namely about the patient's background; sex and age, employment status, level of education, and previous health state. Based on individual clinical registries and on direct questioning of patients during the follow-up consultation, previous health state was evaluated by the patient's physician according to three categories: healthy, chronic non-disabling diseases (i.e. able to work or perform normal daily activities), and chronic disabling diseases (i.e. unable to work or undertake normal daily activities). Each participating physician classified all patients to one of these three categories. For the purpose of analysis patients were divided into two groups: previously healthy and previously non-healthy (with chronic non-disabling disease or chronic disabling disease). The study suggested that most of the ICU survivors had memories of their ICU stay 6 months after ICU discharge. Moreover, having memories of the ICU stay was significantly associated with a higher perceived HRQoL. [47]

Ebrahim S, Singh S, Hutchison JS, Kulkarni AV, Sananes R, Bowman KW et al. carried out a prospective observational study which evaluated children's adaptive behaviour functioning with the Vineland Adaptive Behavior Scale-2, functional outcomes with the pediatric cerebral performance category and pediatric coverall performance category, and health-related quality of life with the Pediatric Quality of Life Inventory 4 and Visual Analogue Scale. Children surviving PICU have significant adaptive behavior functioning and functional morbidity and reduced health-related quality of life. Although neurologic morbidity following ICU was associated with baseline state, it was found that resuscitation intensity and illness severity factors were independently associated with the development of acquired brain injury and reduced quality of life. [48]

Poongundran Namachivayam et al aimed at describing the characteristics of children admitted to the pediatric intensive care unit and their long term outcome modalities. Pediatric intensive care should not only attempt to save the lives of critically ill children, but should also strive to maximize the quality of those lives. Measures of the effectiveness of pediatric intensive care should, therefore, include physical and psychological sequelae, as well as the quality of life in survivors and their families. A full evaluation of long-term outcomes is fundamental to the evaluation of the effectiveness of intensive care, in resource allocation, and in planning the long-term care of patients after discharge from the intensive care unit. The increasing number of survivors from pediatric intensive care who have a moderate or severe long-term disability has major emotional, practical, and financial implications for the individual and the family, and has important resource implications for the whole community. A total of 4010 children were admitted on 5250 occasions. Readmissions increased from 11% for 1982 to 31% in 2005 to 2006 ($p<0.001$). In 2005-2006, fewer children were admitted after accidents ($p<0.001$), or with croup ($p<0.001$), or epiglottitis ($p=0.01$), and 8% were treated with non

invasive ventilation compared to none in 1982 (p<0.0001). Among children aged > or =1 month, pediatric intensive care unit length of stay remained constant. The risk of death predicted by the Pediatric Index of Mortality (PIM) remained constant (approximately 6%) between 1995 and 2005-2006. The proportion that died in the pediatric intensive care unit fell from 11.0% in 1982 to 4.8% in 2005-2006 (p<0.001). Among children aged >/=1 month, proportion admitted with a pre existing moderate or severe disability was similar: 12.0% in 1982 and 14.6% in 2005-2006 (p=0.11), but the proportion with a moderate or severe disability at follow-up increased from 8.4% in 1982 to 17.9% in 2005-2006 (p<0.001). The proportion of children aged >or=1 month who either died in the pediatric intensive care unit or survived with disability did not improve: it was 19.4% in 1982 and 22.7% in 2005-2006. [49]

Pollack et al investigated significant new morbidities associated with pediatric critical care. The main outcome measures were hospital discharge functional status measured by Functional Status Scale (FSS) scores and new morbidity defined as an increase in the FSS of ≥ 3. Of the 5017 patients, there were 242 new morbidities (4.8%), 99 PICU deaths (2.0%) and 120 hospital deaths (2.4%). Both morbidity and mortality rates differed (p<0.001) among the sites. The worst functional status profile was on PICU discharge and improved on hospital discharge. On hospital discharge, the good category decreased from a baseline of 72% to 63%, mild abnormality increased from 10% to 15%, moderate abnormality status increased from 13% to 14%, severe status increased from 4% to 5% and very severe was unchanged at 1%. The highest new morbidity rates were in the neurological diagnoses (7.3%), acquired cardiovascular disease (5.9%), cancer (5.3%) and congenital cardiovascular disease (4.9%). New morbidities occurred in all ages with more in those under 12 months. New morbidities involved all FSS domains with the highest proportions involving respiratory, motor, and feeding dysfunction. The incidence of new morbidity was 4.8%, twice the mortality rate, and occurred in

essentially all types of patients, in relatively equal proportions, and involved all aspects of function. Compared to historical data, it is possible that pediatric critical care has exchanged improved mortality rates for increased morbidity rates. [50]

Morrison et al [51] conducted a prospective survey in a 13 bedded Pediatric intensive Care unit in a university affiliated, tertiary referral children's hospital. Patients were 432 children discharged from the pediatric intensive care unit between May 1992 and April 1994. Quality of life was measured by using the Royal Alexandra Hospital for Children Measure of Function. The scale has two components, the first part completed by the clinician after parent interview and the second part completed separately by the parent. Quality of life was determined by using the RAHC Measure of Function, an instrument developed and validated by Dossetor and colleagues [52] for use in the general pediatric population. For the purposes of this study, the RAHC Measure of Function was divided into three groups reflecting poor, fair, or good quality of life. A score of 1–30 reflects a high level of health problems, with the child in hospital or receiving an equivalent level of care. These children will be significantly dependent in several areas of development, physical, and cognitive function and health. A child scoring 31 to 70 on the RAHC Measure of Function has a fair quality of life but may be delayed in one or more areas of physical function and mental cognitive development, and social skills may be inadequate. Health problems may require specialist intervention or frequent hospitalization (e.g. for moderately severe asthma). A score of 71–100 reflects minimal ongoing health problems. This study arose from concern about the value of pediatric intensive care. Therefore quality of life was examined as an outcome measure in a PICU across a range of common diagnostic groups. It was found that quality of life outcome for the majority of children were good, with 59% scoring 70 on the RAHC Measure of Function. A further 32% had a fair quality of life, and 2% had a poor quality of life. Six percent of children died after PICU

discharge. Younger children who survived had a better quality of life than older children. This may be attributable to their diagnosis, because the majority of infants 1 yr old were admitted with respiratory illness or postoperatively for congenital heart disease. In addition, because parents are proxy reporters for children's quality of life, this result may also reflect a lack of understanding or recognition of ongoing problems in younger children. [53]

Fiser and Tilford sought to study relationship of illness severity and length of stay to functional outcomes in the pediatric intensive care unit. The type of study was a multicentric prospective cohort study. Functional outcomes were measured by the Pediatric Overall Performance Category (POPC) and Pediatric Cerebral Performance Category (PCPC) scales. Both scales were assessed at baseline and discharge from the PICU. Other measurements included admission Pediatric Risk of Mortality scores, age, operative status, length of stay in the PICU and diagnoses. The POPC and PCPC scales were developed to quantify short-term cognitive impairment and overall short-term functional morbidity. Their development followed outcome scales to measure functioning in brain-damaged adults with operational definitions adapted for children. As baseline functional status worsens, length of stay in the PICU increases up to the most severe state. Patients with the most severe baseline states have the highest risk of mortality and consequently shorter lengths of stay. The discharge scores indicate increasing risk of mortality across all outcome categories. [54]

Janse et al investigated the differences in perception of quality of life between parents of chronically ill children and pediatricians at diagnosis and follow up. Quality of life was assessed using the (HUI 3). Main outcome measure was percentage agreement on the attributes of the HUI 3 between parents and pediatricians. Differences in perception of health and wellbeing between pediatricians and parents of children

with a chronic disease were found, not only at diagnosis but also after a period of follow up. Differences were particularly clear in the subjective attributes emotion (range of agreement 28-68%) and pain/discomfort (range of agreement 11-33%). In all patient groups, at baseline and follow up, the pediatrician assessed the patient to have less pain/discomfort in comparison to the parents. Despite a prolonged patient- pediatrician relationship, differences at follow up did not decrease compared to baseline. It was concluded that at the onset of a chronic disease, but also after a period of follow up, quality of life of pediatric patients may be misunderstood by healthcare professionals, especially in the subjective attributes. Systematic assessment of quality of life may contribute to better understanding between physicians and parents. [55]

Nupen and Morrow studied the characteristics as well as the long term outcome of patients post PICU stay in South Africa on all children admitted to a PICU over one calendar year. Long PICU stay was defined statistically as >19 days. Long- and short-stay patient (SSP) groups were compared, and variables significantly associated with long stay on univariate analysis were entered into a stepwise multiple regression model. LSPs represent a small proportion of PICU admissions, yet have a higher mortality rate than SSPs and consume disproportionate PICU resources. No predictive model could be established for early recognition of potential LSPs to plan PICU bed allocation effectively. [56]

MATERIALS & METHODS

This prospective observational study was conducted over a period of 18 months (January 2020 to June 2021) in patients admitted to the PICU of a tertiary care hospital. The study would be carried out in the PICU Follow up clinic of the Department of Pediatrics, Dayanand Medical College and Hospital, Ludhiana.

Duration of the study

This is a prospective observational study from Jan 2020 to March 31st 2021 (including follow up).The time period was extended for further 3 months till June 2021 due to the loss to follow up due to COVID 19.

Inclusion criteria

1. The target population had to be children discharged from the Pediatric ICU aged 2-18 years of age.
2. Children admitted in the Pediatric ICU for more than 3 days.

Exclusion criteria

1. Children less than 2 years of age and more than 18 years of age.
2. Duration of ICU stay <= 3 days.
3. Children who died or took discharge against medical advice.
4. Children with significant background morbidities before the onset of illness requiring admission to PICU like neuro developmental disorders and major congenital malformations.

The study was approved by the institution ethics committee. Written informed consent was obtained from the children where possible, and their parents in case of younger children.

Source of Data

A prospective observational study was done on children aged 2-18 years of age and having PICU stay of > 3 days who followed up in the PICU clinic after being discharged.

Method of Collection of Data

Written consent was obtained from each patient after explaining the procedure in his/her vernacular language to allay fear and anxiety.
A detailed history about the quality of life was taken through a structured proforma.

The proforma was handed over to the parents for children less than 5 years of age and to the children as well as parents in case of 5 years or older.

On both visits, patients were assessed for their HRQOL which was measured using the HRQoL Questionnaire-Peds Quality of Life Inventory (Version 4.0) (Depicted in annexure). Based on their scores calculated using this tool, children were assessed and categorized for their quality of life and HRQoL was compared between these 2 visits after discharge. Statistical Analysis-Continuous data was compared with the Students T test and the Mann-Whitney test was used for non parametric variables.

The informant was required to indicate how much of a problem each item has been on a scale of 0 = “never a problem” to 4 = “always a problem”. Items are reverse scored, averaged, and transformed to a scale of 0–100, with higher scores indicating fewer problems. In addition to the individual scale scores, it is possible to compute the total score (the mean of the four summed scale scores), the physical health summary score (equivalent to the physical functioning score), and the psychosocial health summary score (the mean of items on the three scales addressing emotional, social, and school functioning).

Extension of the Scoring Scale

Scores are transformed on a scale from 0 to 100.

Scoring Procedure

Step 1: Transform Score

Items are reversed scored and linearly transformed to a 0-100 scale as follows:

0=100, 1=75, 2=50, 3=25, 4=0.

Step 2: Calculate Scores

Score by Dimensions:

- If more than 50% of the items in the scale are missing, the scale scores should not be computed.
- Mean score = Sum of the items over the number of items answered.
- Psychosocial Health Summary Score = Sum of the items over the number of items answered in the Emotional, Social, and School Functioning Scales.
- Physical Health Summary Score = Physical Functioning Scale Score

Total Score: Sum of all the items over the number of items answered on all the scales.

Interpretation and Analysis of Missing Data

If more than 50% of the items in the scale are missing, the Scale Scores should not be computed. If 50% or more items are completed: Impute the mean of the completed items in a scale. In some cases, this data was collected telephonically due to the COVID 19 pandemic. Also, the school domain of our questionnaire was not applicable as children of all age groups largely remained at home due to the pandemic.

Clinical Significance

The study will help us to assess the overall quality of life during various stages of follow up of children admitted in the pediatric intensive care unit. Ideally, HRQOL instruments should be multidimensional and

consist at the minimum of physical, mental and social dimensions as outlined by the World Health Organisation.

Statistical Analysis

Data was described in terms of range; mean ± standard deviation (±SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. To determine whether the data were normally distributed, a Kolmogorov-Smirnov test was used. Comparison of quantitative variables between the study groups was done with Mann Whitney U test for independent samples and for non-parametric data, Spearmann Correlation was used. A probability value (p value) less than 0.05 was considered statistically significant. All statistical calculations were done using (Statistical Package for the Social Science) SPSS 21 version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

Body mass index

The range of BMI was taken as per the WHO charts:

BMI < 10^{th} percentile = Underweight

BMI between 10^{th} to 85^{th} percentile = Normal

BMI between 85^{th} to 95^{th} percentile = Overweight

BMI > 95^{th} percentile = Obese

Socio- economic scale –

Modified Kuppuswamy scale – 2018 version (shown in annexure) was used to classify the families into different grades of socio – economic status.

Weight – weight in kilograms was plotted on WHO IAP growths charts (as shown in annexure) for males and females.

Height – height in centimeters was plotted on WHO IAP (as shown in annexure) growth charts for males and females.

OBSERVATIONS AND RESULTS

A total of 50 patients who met the criteria for inclusion as described in material and methods were enrolled in the study.

- Total number of children admitted to PICU (January 2020 to June 2021) – 570.
- Total number of deaths in this period - 38
- Total number of discharges (DAMA/DOR) - 62
- Fulfilled inclusion criteria - 300
- OPD visitors - 200
- Filled proformas at 2 weeks follow up -123
- Loss to follow up - 70
- Proformas at 3 months - 53
- Readmissions and deaths - 3(2+1)
- Total number of eligible candidates - 50

Flow Diagram showing progress through various stages of the study (FIGURE – A).

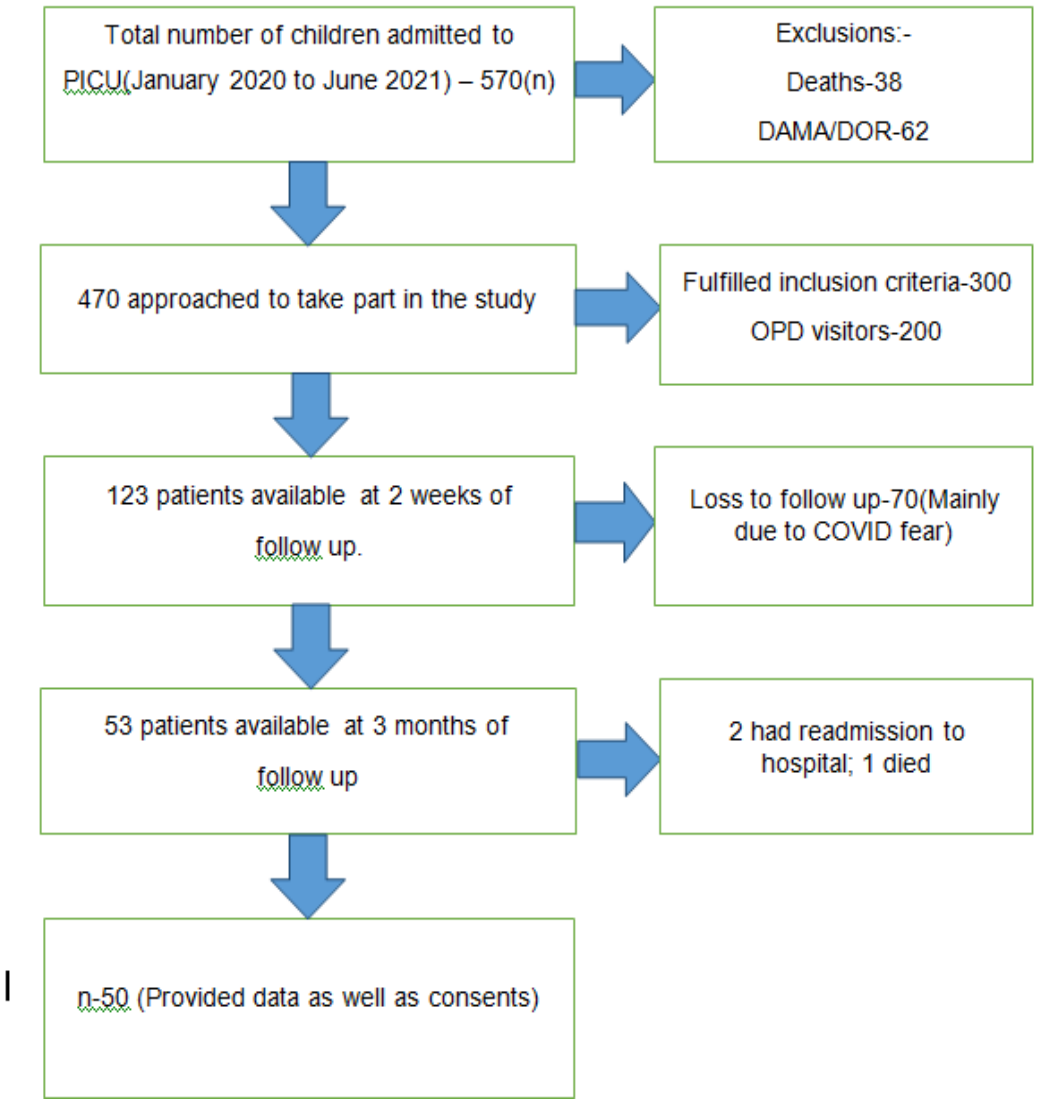
Total number of children admitted to PICU(January 2020 to June 2021) – 570(n)
Exclusions:-
Deaths-38
DAMA/DOR-62
470 approached to take part in the study
Fulfilled inclusion criteria-300
OPD visitors-200
123 patients available at 2 weeks of follow up.
Loss to follow up-70(Mainly due to COVID fear)
53 patients available at 3 months of follow up
2 had readmission to hospital; 1 died
n-50 (Provided data as well as consents)

TABLE 1- DISTRIBUTION OF PATIENTS ACCORDING TO AGE (n=50).

Age group	No. of cases	Percentage
< 5	13	26.0%
5-10.0	18	36.0%
> 10	19	38.0%
Total	50	100.0%

The total numbers of patients were divided into 3 groups. The maximum number of patients 19 (38%) were in the age group of more than 10 years. There were 13 (26%) patients in the age group of fewer than 5 years and 18 (36%) patients in the age group of 5 to 10 years. Mean±SD age of patients was 9.10 ± 4.574 years.

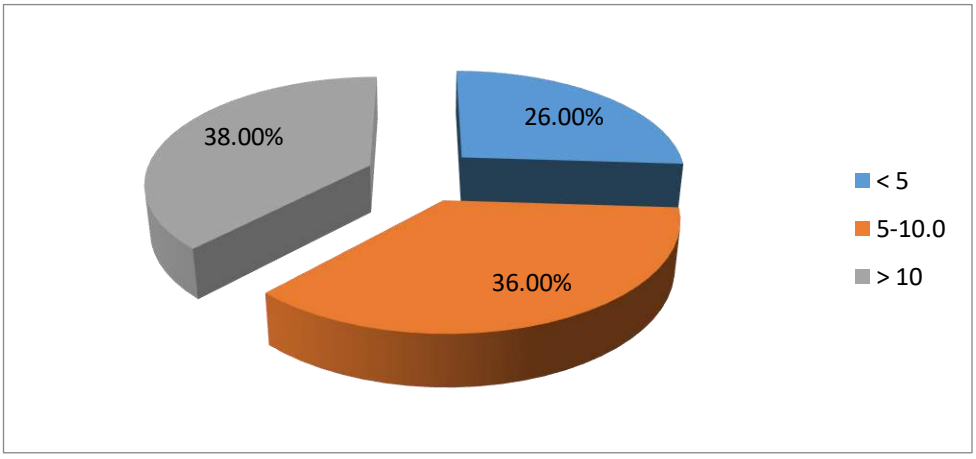

FIGURE NO 4- AGE DISTRIBUTIONS OF PATIENTS.

TABLE 2- DISTRIBUTION OF PATIENTS ACCORDING TO GENDER (n=50).

Gender	No. of cases	Percentage
Female	10	20.0%
Male	40	80.0%
Total	50	100.0%

Table 2 shows the gender distribution of patients. Out of 50 patients, there were 10 (20%) females and 40 (80%) males. Male to female ratio was 4:1.

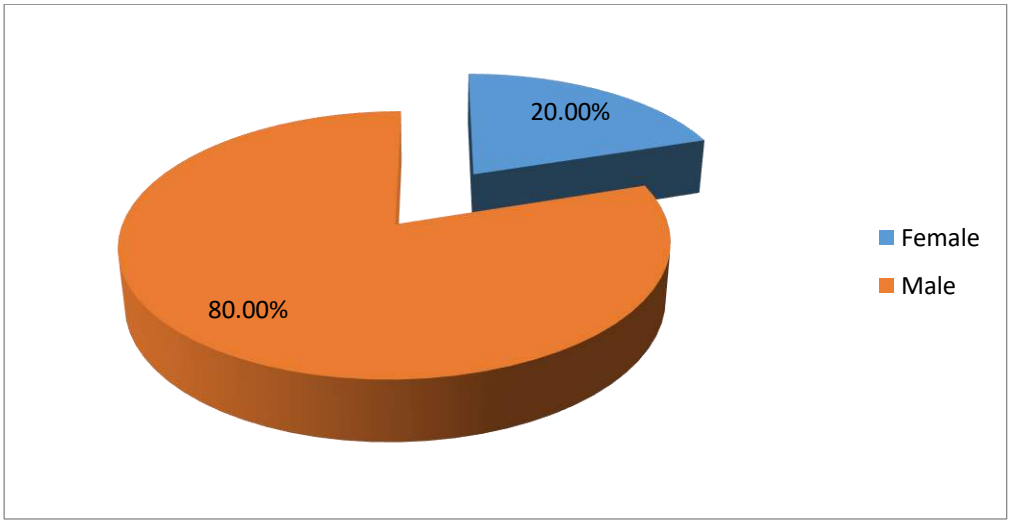

FIGURE NO 5- GENDER DISTRIBUTION OF PATIENTS.

TABLE 3- DISTRIBUTION OF PATIENTS ACCORDING TO NUTRITIONAL STATUS (n=50).

Nutritional status at admission	No. of cases	Percentage
Normal	38	76.0%
Underweight	9	18.0%
Overweight	3	6.0%
Total	50	100.0%

Table 3 shows that out of the total number of enrolled patients, 38 had a normal nutritional status, which was 76% of the total .On the other hand,9 children(18%) were underweight and 3 (6%) were overweight.

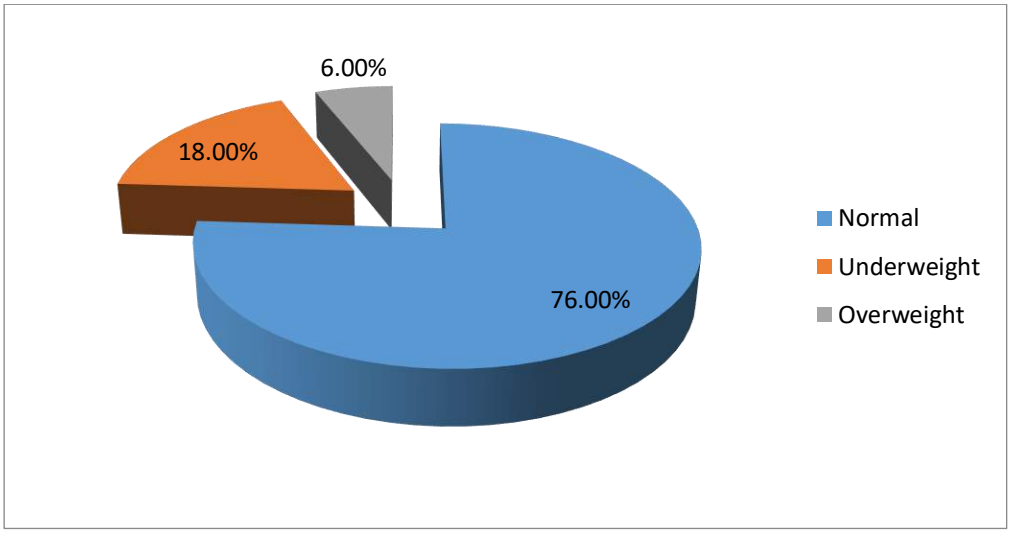

FIGURE NO 6- DISTRIBUTION OF PATIENTS ACCORDING TO NUTRITIONAL STATUS.

TABLE 4- DISTRIBUTION OF PATIENTS ACCORDING TO SOCIO ECONOMIC STATUS (Modified Kuppuswamy Scale 2018) (n=50).

Socio Economic class	No. of cases	Percentage
Upper	9	18 %
Upper Middle	22	44%
Lower Middle	18	36%
Upper Lower	0	-
Lower	1	2 %
Total	50	100.0%

Modified Kuppuswamy scale (2018) was used to assess the socioeconomic status of families of the children. Majority of patients belonged to upper middle class group, i.e 44 %, followed by 36% in lower middle class group and 18% in upper -class group. There were just 2 % children from the lower class.

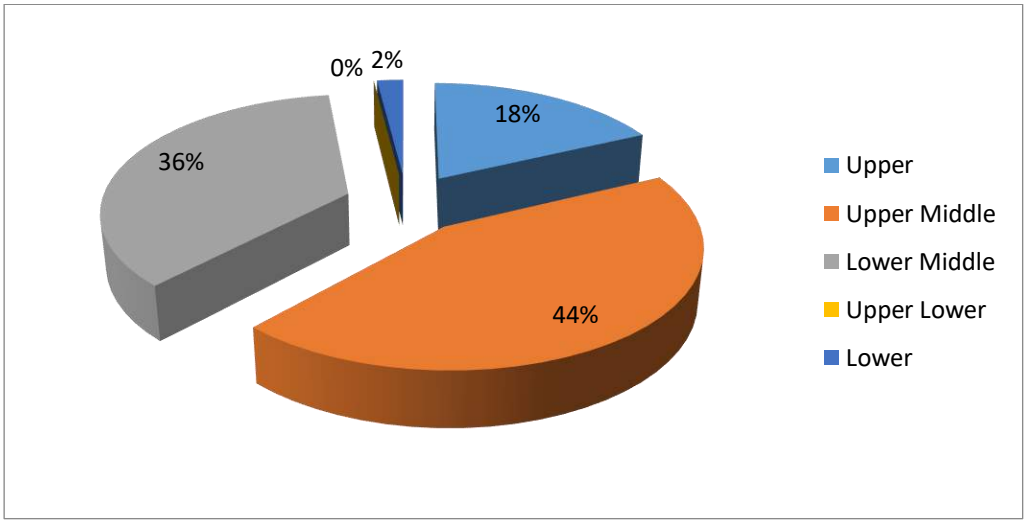

FIGURE NO 7- DISTRIBUTION OF PATIENTS ACCORDING TO SOCIO ECONOMIC STATUS.

TABLE 5- DISTRIBUTION OF PATIENTS ACCORDING TO ORGAN SYSTEM INVOLVED (n=50).

PRIMARY SYSTEM INVOLVED	No. of cases	Percentage
CARDIOVASCULAR	3	6.0%
INFECTIOUS	9	18.0%
ENDOCRINE	2	4.0%
GASTROINTESTINAL	6	12.0%
HEMATOLOGICAL	2	4.0%
MISCELLANEOUS	10	20.0%
NEUROLOGICAL	9	18.0%
PLASTIC SURGERY	1	2.0%
RENAL	2	4.0%
RESPIRATORY	1	2.0%
TRAUMA	5	10.0%
Total	50	100.0%

Out of all organ systems, the maximum numbers were in the miscellaneous section-10, which comprised 20 percent of total. The miscellaneous system consisted of children with Multisystem Inflammatory Syndrome in Children (earlier called Pediatric Inflammatory Multisystem Syndrome), poisonings, drowning etc. The second major group for admissions were infectious disease (out of which the maximum cases were of dengue) and neurological (18% each), followed by gastrointestinal (12%). Trauma cases comprised of 10 % of the total.

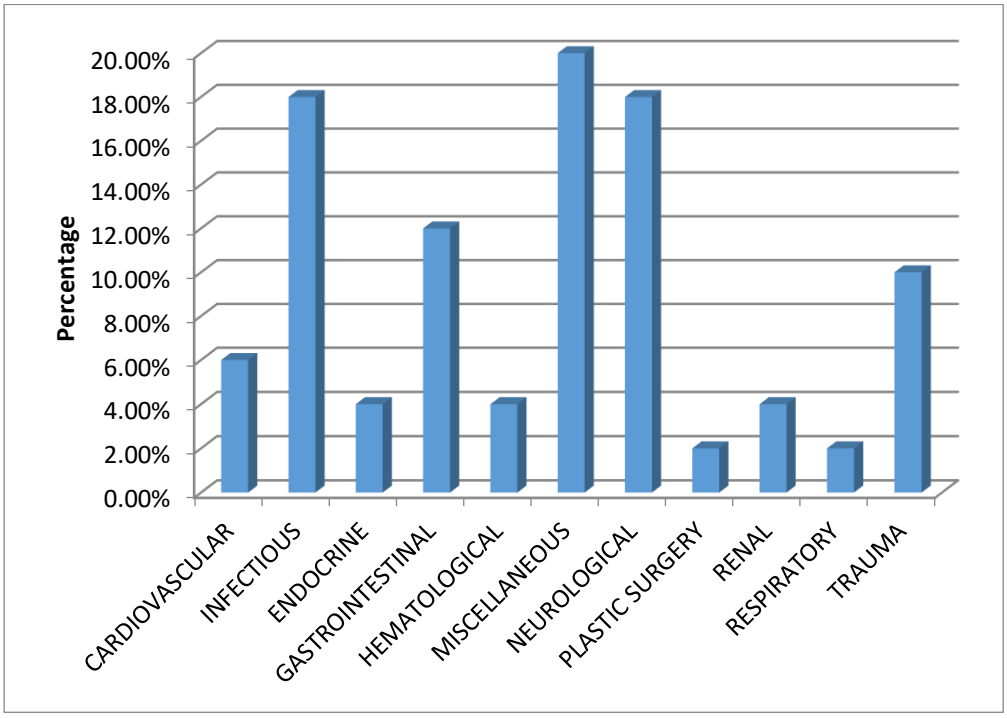

FIGURE NO 8 -DISTRIBUTION OF PATIENTS ACCORDING TO ORGAN SYSTEM INVOLVED.

TABLE 6- DISTRIBUTION OF PATIENTS ACCORDING TO PICU STAY (n-50).

PICU STAY	No. of cases	Percentage
< 5	16	32.0%
5-10.0	24	48.0%
> 10	10	20.0%

Most of the children had a stay of around 5-10 days (48%), followed by <5 days (32%). Very few children had a prolonged stay of more than 10 days (20%).

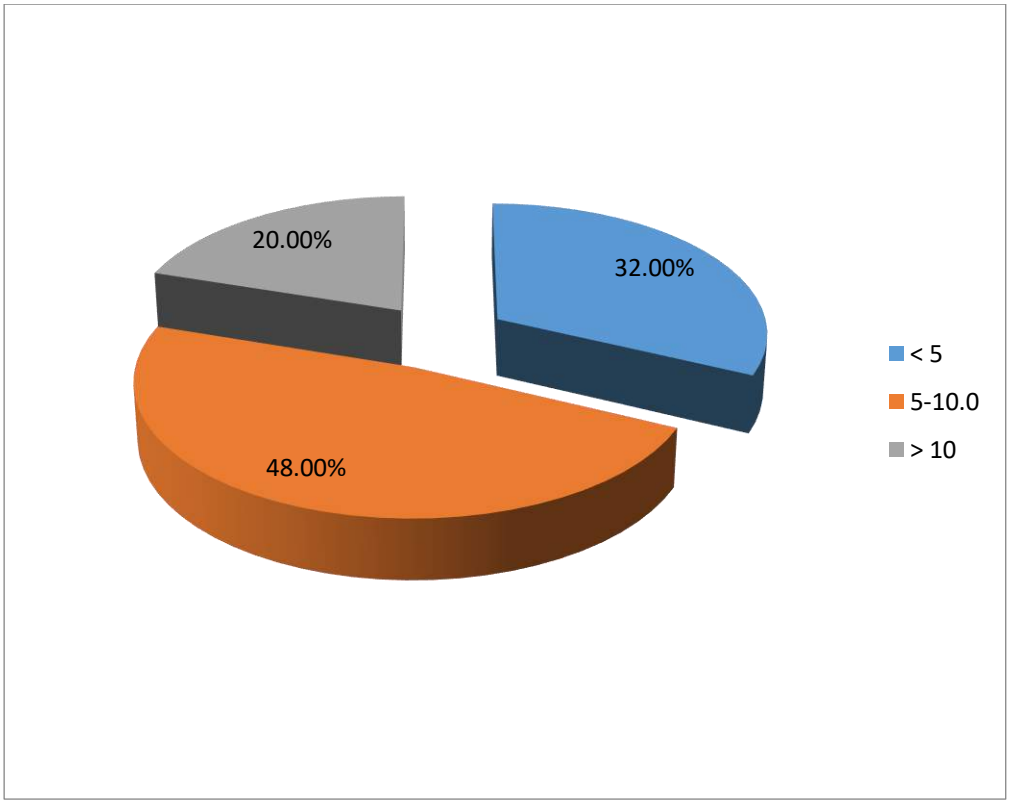

FIGURE NO 9- DISTRIBUTION OF PATIENTS ACCORDING TO PICU STAY.

TABLE 7- DISTRIBUTION OF PATIENTS ACCORDING TO READMISSIONS TO PICU (n-50).

No. of Readmissions to PICU	No. of Cases	Percentage
NONE	47	94.0%
ONE	3	6.0%
Total	50	100.0%

Out of the total children who fulfilled the inclusion criteria, only 3 had readmissions to the Pediatric ICU (6%).

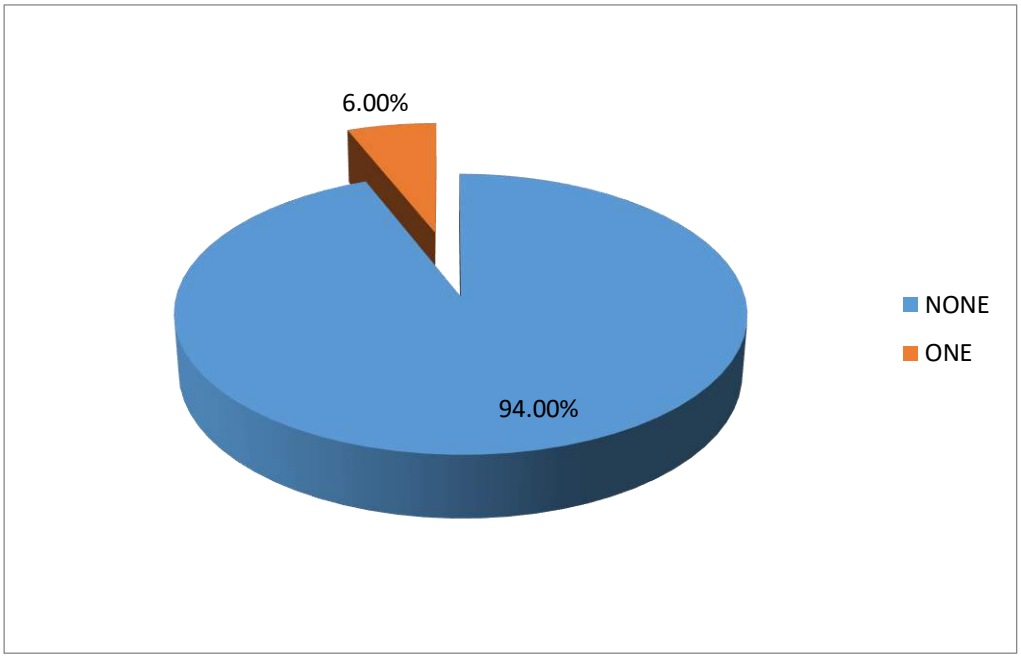

FIGURE NO 10- DISTRIBUTION OF PATIENTS ACCORDING TO READMISSIONS TO PICU.

TABLE 8- DISTRIBUTION OF PATIENTS ACCORDING TO PRISM SCORE (n-50).

PRISM Score	No. of cases	Percentage
1-9	18	36.0%
10-19	25	50.0%
20-29	7	14.0%
>30	0	0.0%

The Pediatric Risk of Mortality is a physiologically based score used to quantify physiologic status, and when combined with other independent variables, it can compute expected mortality risk and expected morbidity risk. 25 children had a PRISM between 10-19, which accounts for about 50 % of the total. 18 children (36%) had a PRISM score of 1-9, and 7 children (14%) had a PRISM score of 20-29.

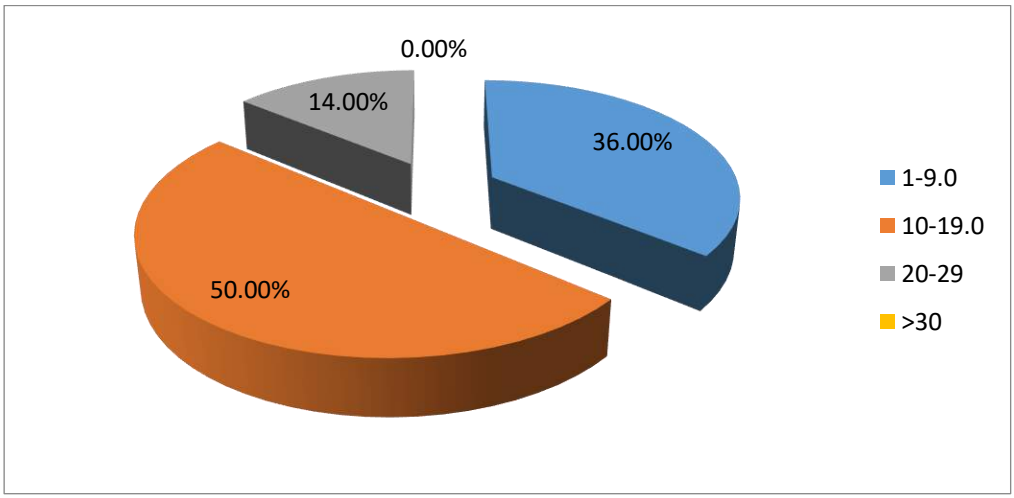

FIGURE NO 11- DISTRIBUTION OF PATIENTS ACCORDING TO PRISMSCORE.

TABLE 9 –OXYGEN DELIVERY DEVICE USED AT ADMISSION (n-50)

Oxygen Delivery Device Used	No. of cases	Percentage
HFNC	1	2 %
NASAL PRONGS	7	14%
NON INVASIVE VENTILATION	17	34%
NON REBREATHING MASK	2	4 %
SIMPLE FACEMASK	23	46 %
Total	50	100%

22 children (44%) were on simple facemask; 7 children were on nasal prongs; 2 were on non rebreathing mask;1 child on HFNC. Other children (17) required non invasive ventilation.

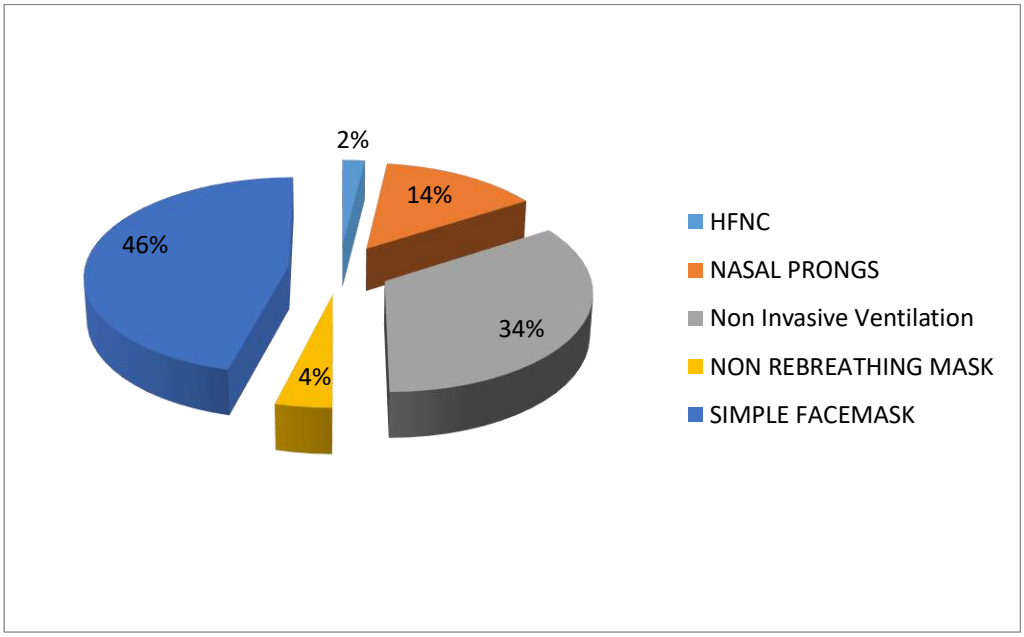

FIGURE NO 12– FIGURE SHOWING OXYGEN DELIVERY DEVICES USED AT ADMISSION.

TABLE 10 - REQUIREMENT OF INVASIVE VENTILATION (n-50).

Invasive Ventilation(Y/N)	No. of cases	Percentage
N	35	70.0%
Y	15	30.0%
Total	50	100.0%

During the PICU stay, 15 children (30%) required invasive ventilation, while 35 children (70%) settled on simple oxygen delivery devices or non invasive ventilation.

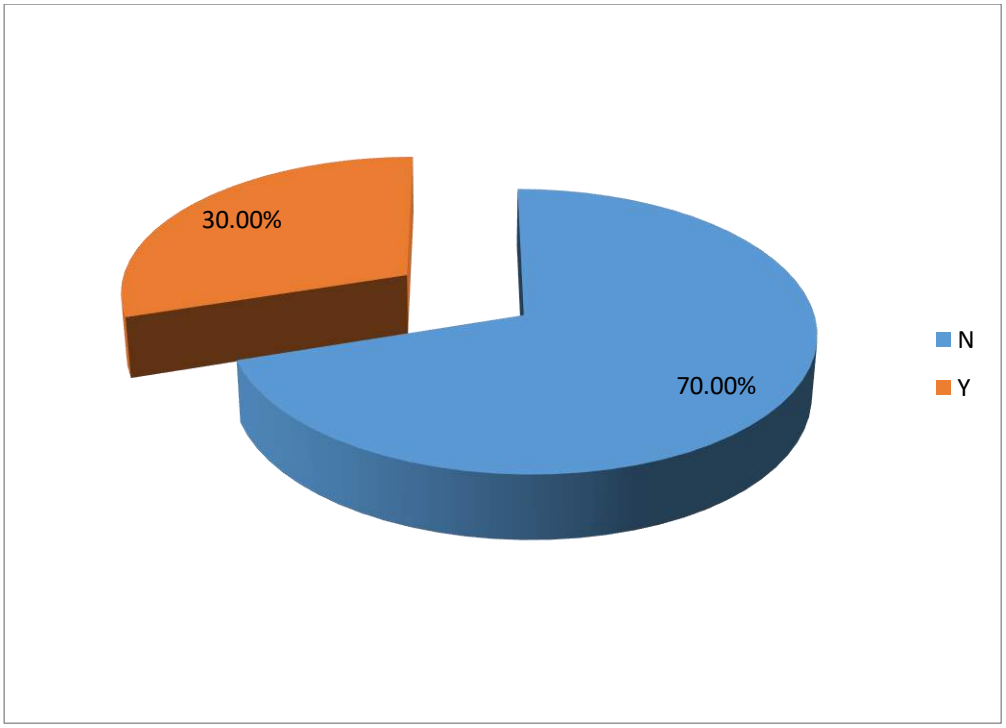

FIGURE NO 13 –REQUIREMENT OF INVASIVE VENTILATION.

TABLE 11 – NUMBER OF DAYS OF INVASIVE VENTILATION (n-15).

No of Days	No. of cases	Percentage
< 7	7	46.7%
7-14.0	7	46.7%
> 14	1	6.7%

Only 15 children (30%) of the total number of enrolled children required ventilatory support. Most of the children required invasive ventilation for less than 7 days (46.7%). 7 children (46.7%) required ventilatory support for 7-14 days. Only 1 child required prolonged ventilation for more than 14 days.

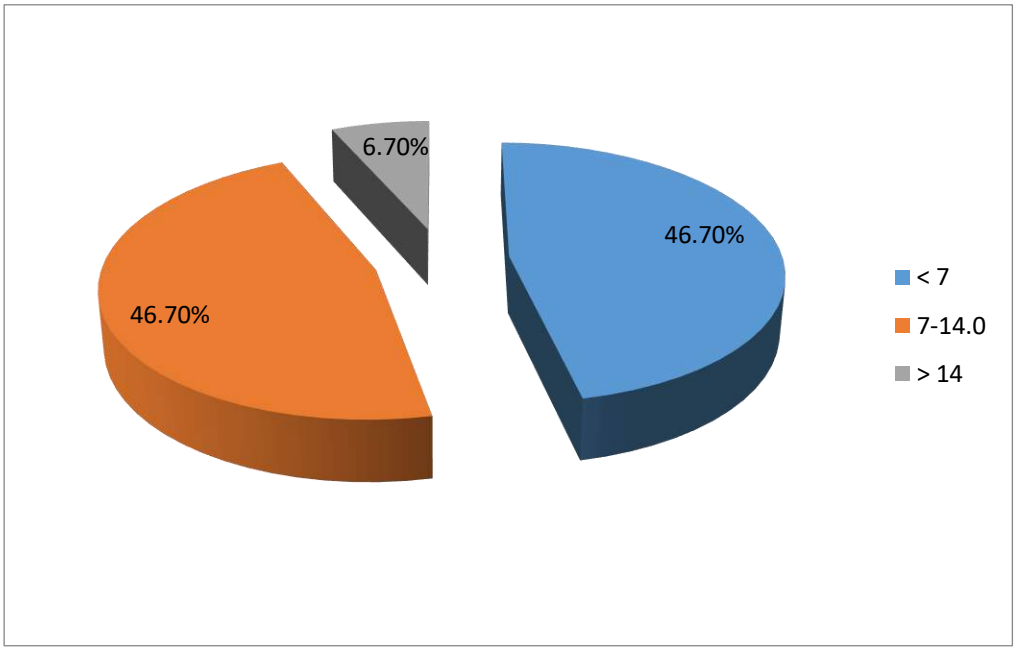

FIGURE NO 14 – DURATION OF INVASIVE VENTILATION.

TABLE 12– REQUIREMENT OF INOTROPIC SUPPORT (n-50).

Inotropic Support	No. of cases	Percentage
NO	24	48.0%
YES	26	52.0%
Total	50	100.0%

While in PICU. 26 children i.e 52% of the total were in shock and thus needed inotropes, while 24 children (46%) were hemodynamically stable without inotropic support.

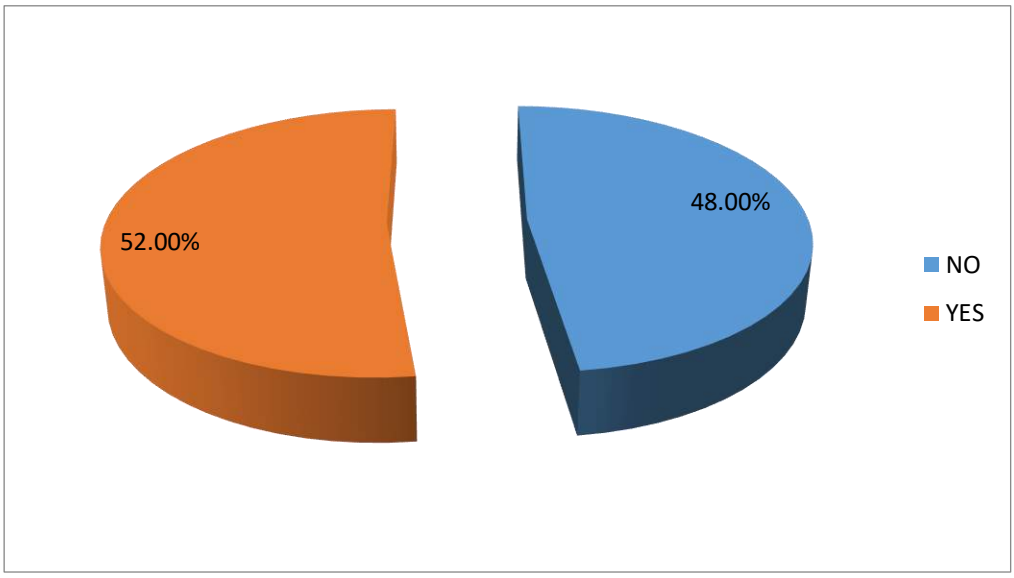

FIGURE NO 15– REQUIREMENT OF INOTROPIC SUPPORT.

TABLE 13– INOTROPIC SUPPORT (Single / Multiple) (n-50).

Single / Multiple	No. of cases	Percentage
NONE	24	48.0%
MULTIPLE	10	20.0%
SINGLE	16	32.0%
Total	50	100.0%

Out of 50 children, 16 (32%) required use of only one inotrope, while 10 children (20%) required more than 1 pressor agent to maintain blood pressure.

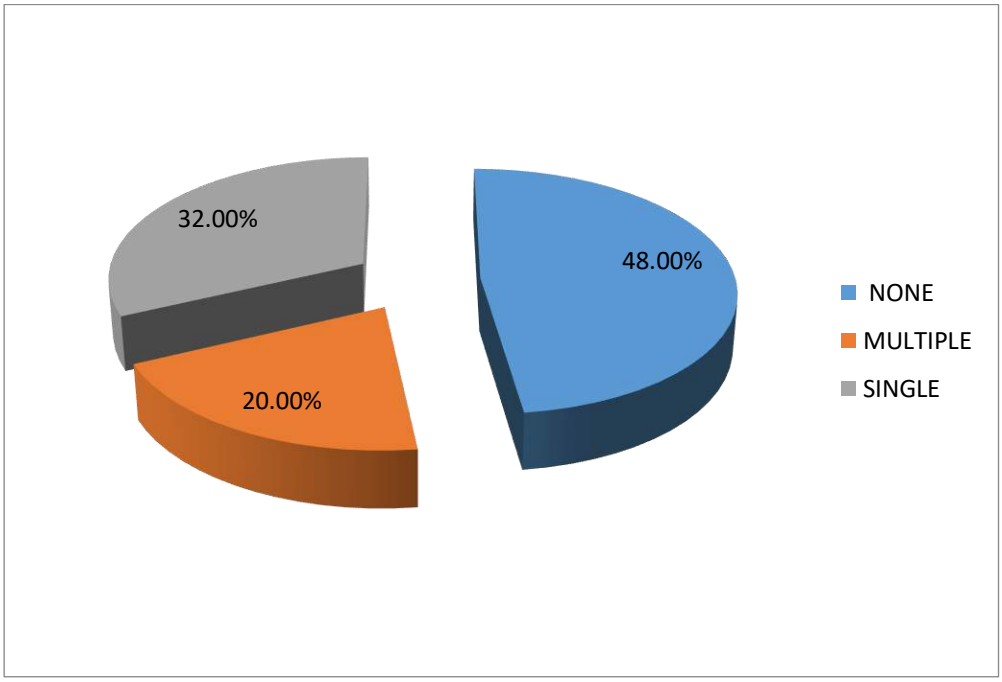

FIGURE NO 16– INOTROPIC SUPPORT (Single / Multiple).

TABLE 14– DURATION OF INOTROPIC SUPPORT (n-26).

No. of days	No. of cases	Percentage
< 5	17	65.4%
5-10.0	9	34.6%
> 10	0	0.0%

Maximum number of children required inotropic support for less than 5 days (65.4%). 9 children (34.6%) required inotropic support between 5 to 10 days.

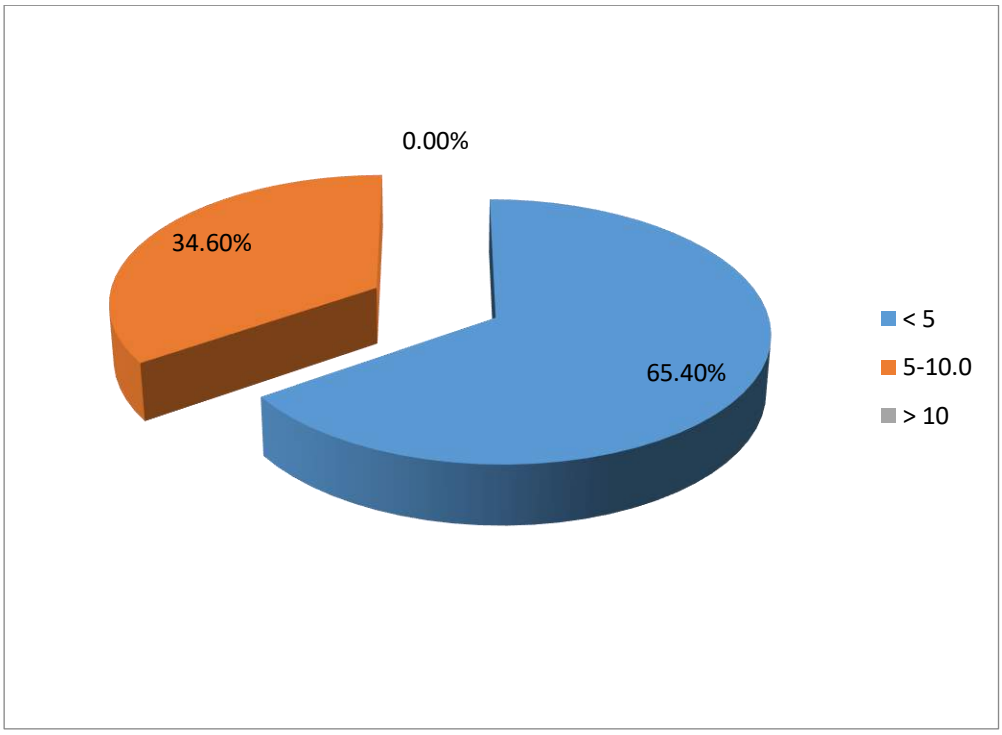

FIGURE NO 17– DURATION OF INOTROPIC SUPPORT.

TABLE 15– REQUIREMENT OF CENTRAL LINE (n-50).

Central line(y/n)	No. of cases	Percentage
N	23	46.0%
Y	27	54.0%
Total	50	100.0%

Out of the 50 children in our study, 27 (54%) had difficult IV access, prolonged stay or need for inotropes , so thus needed central line insertion.

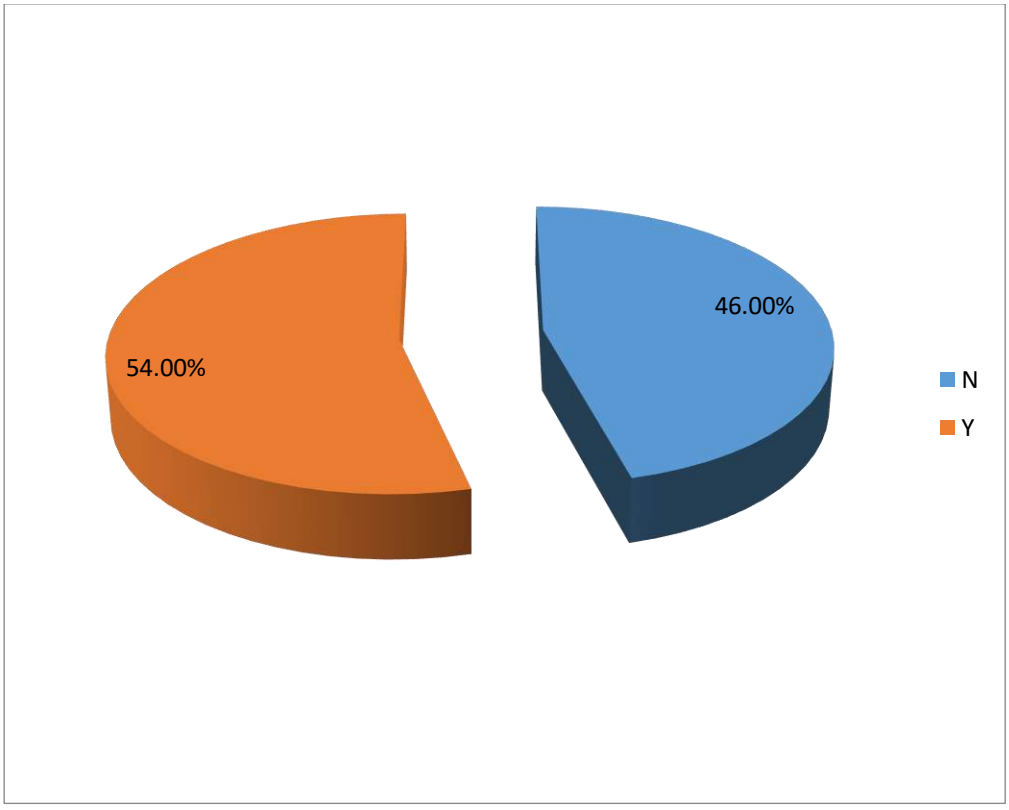

FIGURE NO 18– FIGURE SHOWING REQUIREMENT OF CENTRAL LINE.

TABLE 16– REQUIREMENT OF ARTERIAL LINE (n-50).

Arterial Line (Y/N)	No. of cases	Percentage
N	20	40.0%
Y	30	60.0%
Total	50	100.0%

Out of the total number of children enrolled 30 (60%) needed an arterial line for IBP monitoring or sampling.

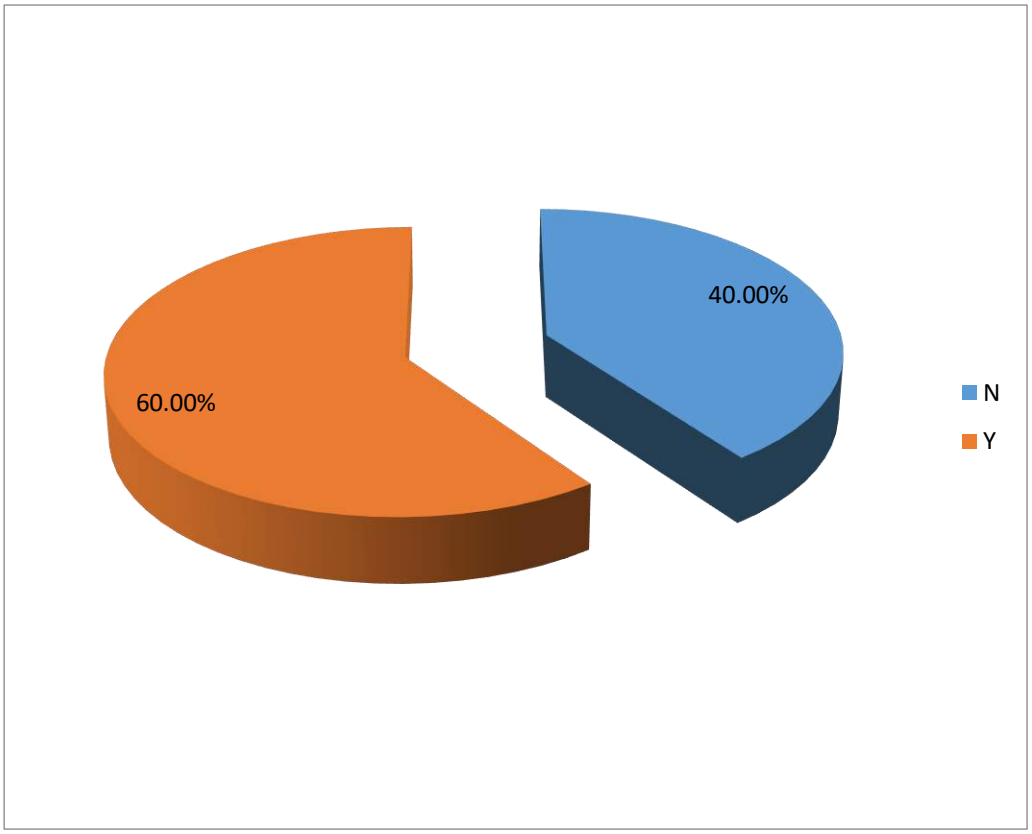

FIGURE NO 19– SHOWING REQUIREMENT OF ARTERIAL LINE .

TABLE 17- REQUIREMENT OF SPECIAL PROCEDURES.

Other Special Procedures	No. of cases	Percentage
CRANIECTOMY,ORBITAL FLOOR REPAIR	1	2.0%
EXPLORATIVE LAPAROTOMY	1	2.0%
FASCIOTOMY,GRAFTING	1	2.0%
I AND D,CURETTAGE	1	2.0%
ICD INSERTION	2	4.0%
LEFT ICD,PERICARDIAL DRAIN	1	2.0%
LUMBAR PUNCTURE	4	8.0%
NO	32	64.0%
OPEN REDUCTION AND FIXATION	1	2.0%
PERITONEAL DIALYSIS	1	2.0%
PLASMAPHERESIS	1	2.0%
TRACHEOSTOMY	2	4.0%
WOUND DEBRIDEMENT,TRACHEOSTOMY	1	2.0%
Total	50	100.0%

Out of all children, 20 children (36%) required some sort of special procedure or investigation during PICU stay.

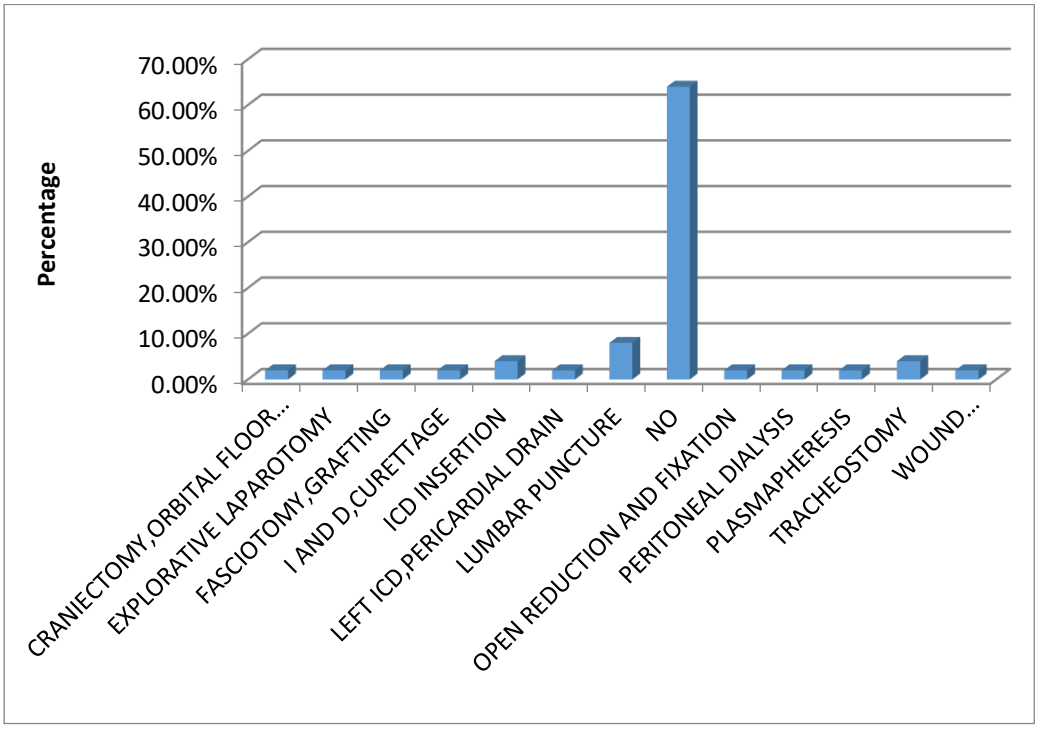

FIGURE NO 20- REQUIREMENT OF SPECIAL PROCEDURES.

TABLE 18- GLASGOW COMA SCALE AT ADMISSION

GCS	No. of cases	Percentage
< 8	8	16 %
9-12	6	12%
13-15	36	72%

GCS at admission was taken into consideration and Table 19 shows the percentage distribution. 36 children (72%) had a GCS of 13-15 at admission; while 16 percent i.e. 8 children had a GCS <8. 6 children (12%) fell in the category of GCS 9-12.

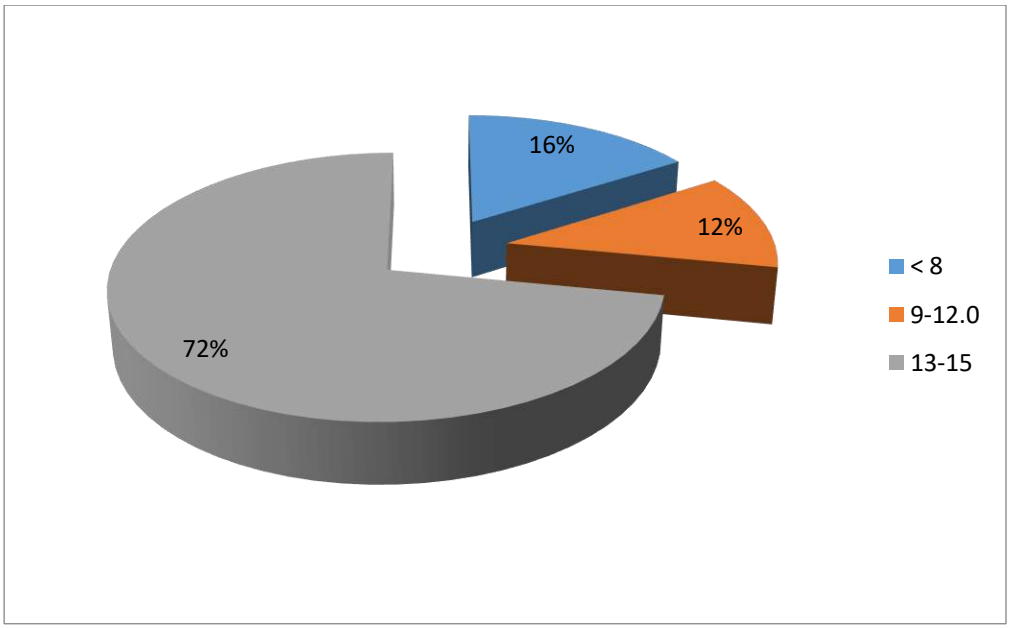

FIGURE NO 21- GLASGOW COMA SCALE AT ADMISSION.

TABLE 19- TABLE SHOWING ANTHROPOMETRIC INDICES.

	N	Minimum	Maximum	Mean	Std. Deviation
WEIGHT	50	8	70	29.42	15.019
HEIGHT	50	39	183	126.98	30.785
OFC	12	43	51	48.08	2.324
BMI	37	12	49	17.51	6.789

Amongst the 50 children included in the study, the minimum weight was 8, while maximum was 70 kg, the mean weight being 29.42 and a standard deviation of 15.019.

The minimum height was 39 cm and maximum height was 183 cm, with a mean height of 126.98 cm and standard deviation of 30.78.

The BMI in these children ranged from 12 to 49, with a mean of 17.51 and standard deviation of 6.789.

The head circumference ranged from 43 to 51 cm, with a mean of 48.08 and standard deviation of 2.324.

TABLE 20- TABLE SHOWING HEALTH RELATED QUALITY OF LIFE AS PER CHILDREN (n-40).

	N	Minimum	Maximum	Mean	Std. Deviation
PHYSICAL SCORE	40	0	100	59.11	25.350
EMOTIONAL HEALTH	40	7	100	71.93	24.348
SOCIAL SCORE	40	0	100	81.75	23.330
SCHOOL ACTIVITIES SCORE	0				
PHYSICAL HEALTH SUMMARY SCORE 2WEEKS	40	0	100	59.11	25.350
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2weeks	40	2	100	75.42	22.524
3 MONTHS PHY	40	0	100	67.50	22.560
3 MONTHS PSYCHO	40	20	100	81.48	19.070

Table no 20 shows the mean HRQOL scores in the 4 domains of our study namely--physical, social, emotional and school.

The mean physical scores at 2 weeks and 3 months respectively were 59.11 and 67.50, which reflects that the QOL was better 3 months after PICU discharge.

Emotional Score-Scores in the emotional domain ranged from 7 to 100, with a mean of mean of 71.93±24.248.

Social scores ranged from 0 to 100 with a mean of 81.75±23.30.School scores could not be computed due to the COVID 2019 wave. The Psychosocial Health Summary scores at 2 weeks and 3 months were 75.42 and 81.48 –again indicating that QOL in this domain was also better as time progressed post PICU discharge. The total numbers of children reports are 40 because 10 children were in the age group where only parents' report was possible.

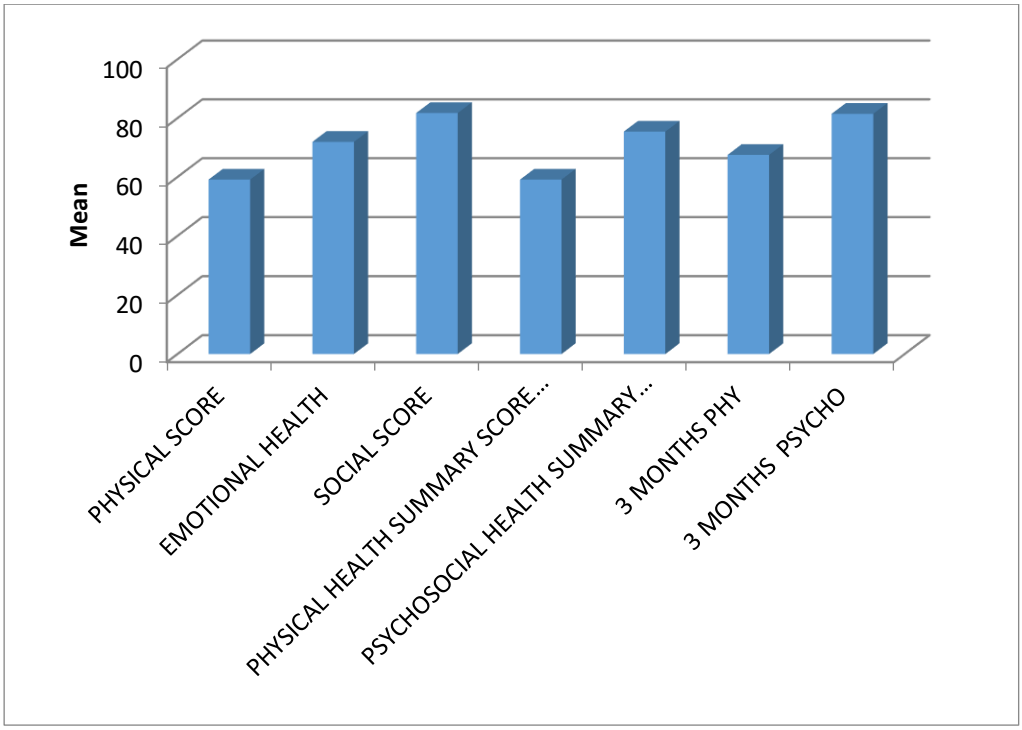

FIGURE NO 22- HEALTH RELATED QUALITY OF LIFE AS PER CHILDREN.

TABLE 21- TABLE SHOWING HEALTH RELATED QUALITY OF LIFE AS PER PARENTS (n-50).

	N	Minimum	Maximum	Mean	Std. Deviation
PARENTS PHYSICAL SCORE	50	0	100	54.29	23.298
PARENTS EMOTIONAL SCORE	50	0	100	68.65	24.007
PARENTS SOCIAL SCORE	50	2	100	77.83	25.151
PARENTS SCHOOL FUNCTIONING	0				
PARENTS PHYSICAL SCORE 2WKS	50	0	100	54.29	23.298
PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	50	15	100	71.50	21.998
PARENTS 3 MONTHS PHY	50	0	100	61.00	21.712
PARENTS 3 MONTHS PSYCHO	50	15	100	76.43	21.877

Table 21 shows the mean HRQOL scores in the 4 domains of our study namely - physical, social, emotional and school.

Physical Score- The scores at 2 weeks and 3 months respectively were 54.29 and 61.00.

Emotional Score-Scores in the emotional domain ranged from 7 to 100, with a mean of mean of 68.65 ±24.00.

Social scores ranged from 0 to 100 with a mean of 77.83 ±25.51.
School scores could not be computed due to the COVID 2019 wave.
The Psychosocial Health Summary scores ranged from 15 to 100-with a mean of 71.50±21.9 at 2 weeks and 76.43±22.5 at 3 months.

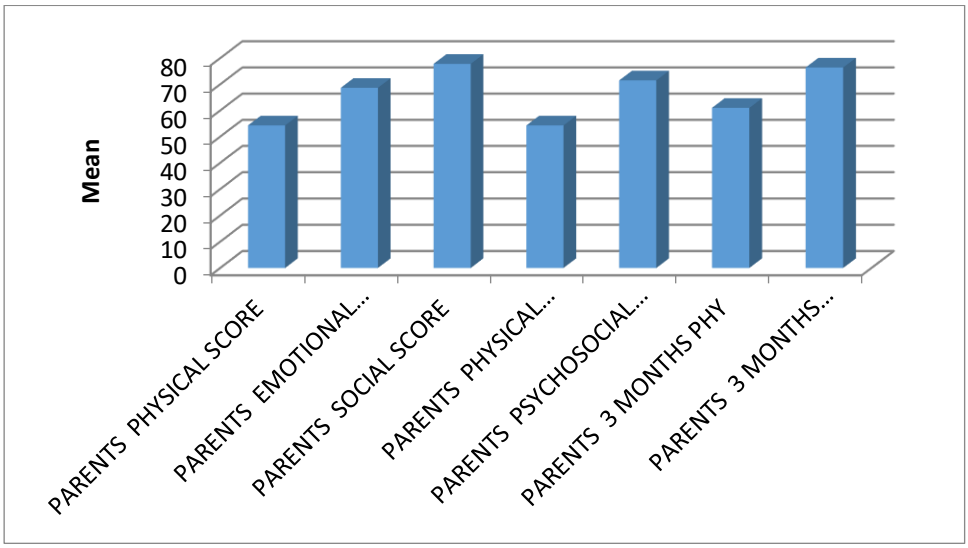

FIGURE NO 23- HEALTH RELATED QUALITY OF LIFE AS PER PARENTS.

TABLE 22- TABLE SHOWING COMPARISON OF PRISM SCORE AT ADMISSION AND CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

PRISM score	< 9		10-19.0		20-29.0		F	p-value
	Mean	SD	Mean	SD	Mean	SD		
Physical score	70.80	19.04	59.85	21.61	14.06	12.88	12.372	0.000
Emotional health	77.50	11.56	71.00	28.13	57.50	34.03	1.090	0.347
Social score	82.86	18.78	82.27	20.63	75.00	50.00	0.181	0.835
Physical health summary score 2 weeks	70.80	19.04	59.85	21.61	14.06	12.88	12.372	0.000
Psycho Social health summary score 2 weeks	77.39	15.80	76.59	21.97	62.08	43.24	0.777	0.467
3 months phy	77.86	15.41	68.41	18.86	26.25	17.97	13.367	0.000
3 months psycho	84.29	13.81	82.00	18.67	68.75	34.73	1.054	0.359

Subjects having a PRISM score <9 had a mean physical score (at 2 weeks) of 70.80 as compared to 59.85 in the category of 10-19. The worst physical domain scores were in children with a PRISM score of 20-29. p value was also significant in this domain. Similar findings (p value significant) were found in the physical domain at 3 months. The emotional and social scores also showed a similar trend, but the p value was not significant in this domain. It was inferred from the study that higher the PRISM score, lower was the quality of life at 2 weeks as well as 3 months.

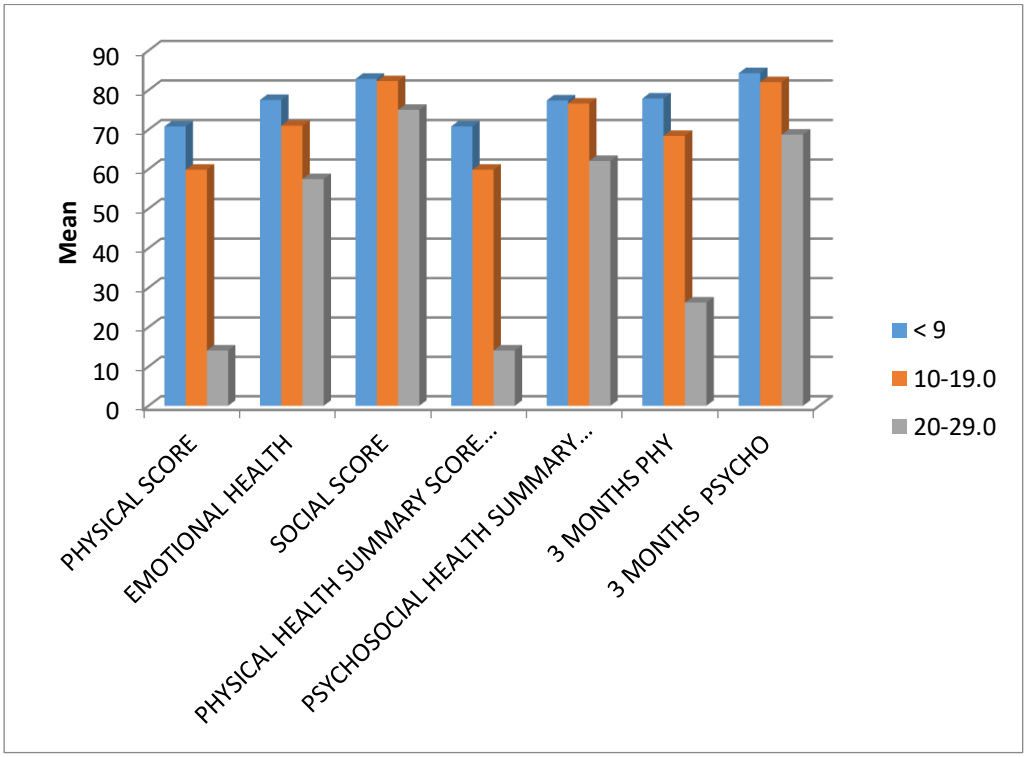

FIGURE 24- COMPARISON OF PRISM SCORE AT ADMISSION AND CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 23-TABLE SHOWING COMPARISON BETWEEN PRISM SCORE AT ADMISSION AND PARENT REPORTED HRQOL.

PRISM score	< 9		10-19.0		20-29.0		F	p-value
	Mean	SD	Mean	SD	Mean	SD		
PARENTS PHYSICAL SCORE	61.96	19.48	56.09	22.40	28.12	19.01	6.749	0.003
PARENTS EMOTIONAL SCORE	70.14	21.46	71.80	22.68	53.57	32.11	1.676	0.198
PARENTS SOCIAL SCORE	80.00	22.56	81.20	20.38	60.24	40.51	2.092	0.135
PARENTS PHYSICAL SCORE 2 WKS	61.96	19.48	56.09	22.40	28.12	19.01	6.749	0.003
PARENTS PSYCHOSOCIAL HEALTH SCORE 2 WKS	71.39	21.44	75.20	20.56	58.57	26.57	1.601	0.212
PARENTS 3 MONTHS PHY	68.89	17.45	62.40	20.92	35.71	17.18	7.600	0.001
PARENTS 3 MONTHS PSYCHO	77.58	20.81	79.80	19.71	61.43	28.54	2.052	0.140

Subjects having a PRISM score <9 had a mean physical score (at 2 weeks) of 61. 96 as compared to 56.09 in the category of 10-19. The worst physical domain scores were in children with a PRISM score of 20-29. p value was also significant in this domain. Similar findings (p value = 0.001) were found in the physical domain at 3 months.

The emotional and social scores also showed a similar trend, but the p value was not significant in this domain.

The trends were comparable to children self reported quality of life.

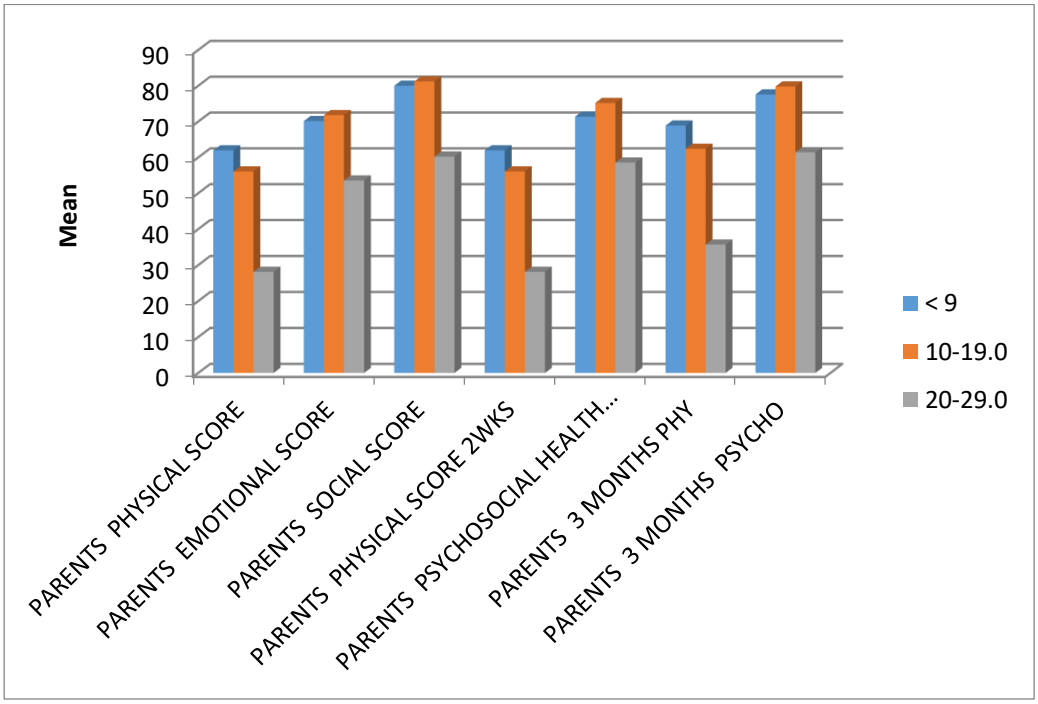

FIGURE NO 25- COMPARISON BETWEEN PRISM SCORE AT ADMISSION AND PARENT REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 24- TABLE SHOWING COMPARISON BETWEEN PICU STAY AT ADMISSION AND CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

PICU stay	< 5		5-10.0		> 10		F	p-value
	Mean	SD	Mean	SD	Mean	SD		
PHYSICAL SCORE	69.02	17.08	56.58	26.02	42.59	32.30	3.095	0.057
EMOTIONAL HEALTH	83.44	17.77	64.82	28.38	62.86	17.99	3.360	0.046
SOCIAL SCORE	86.56	17.58	85.00	19.45	62.86	35.34	3.103	0.057
PHYSICAL HEALTH SUMMARY SCORE 2 WEEKS	69.02	17.08	56.58	26.02	42.59	32.30	3.095	0.057
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 WEEKS	82.56	18.94	74.21	20.42	62.03	30.66	2.193	0.126
3 MONTHS PHY	75.63	15.90	66.18	22.19	52.14	30.12	2.959	0.064
3 MONTHS PSYCHO	88.13	12.06	80.24	19.38	69.29	26.52	2.644	0.084

It was noted that there was a strong relation between emotional domain and HRQOL (p value-0.046). As the length of PICU stay increases, the mean score in each domain decreases, particularly the emotional score.

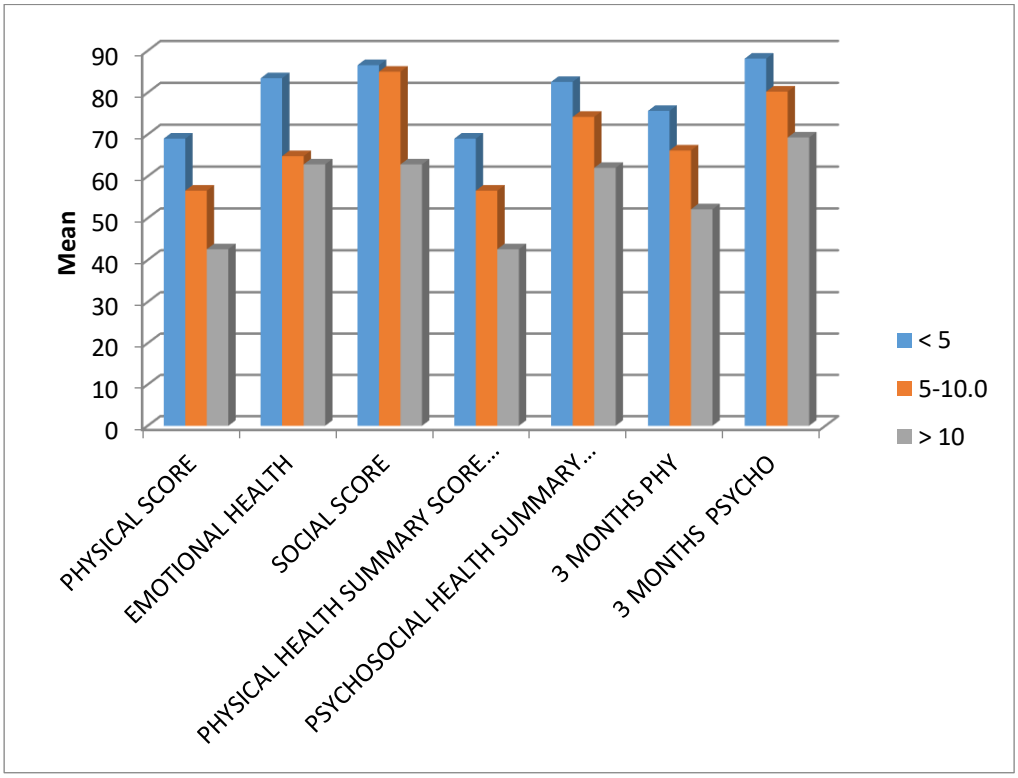

FIGURE NO 26- COMPARISON OF PICU STAY AT ADMISSION AND CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 25- TABLE SHOWING CORRELATION BETWEEN PICU STAY AT ADMISSION AND PARENT REPORTED HEALTH RELATED QUALITY OF LIFE.

PICU stay	< 5		5-10.0		> 10		F	p-value
	Mean	SD	Mean	SD	Mean	SD		
PARENTS PHYSICAL SCORE	66.60	18.20	54.86	22.22	33.22	19.42	8.190	0.001
PARENTS EMOTIONAL SCORE	83.75	16.48	68.54	20.35	44.75	24.22	11.65	0.000
PARENTS SOCIAL SCORE	84.69	18.66	82.71	21.92	55.17	30.31	6.185	0.004
PARENTS PHYSICAL SCORE 2WKS	66.60	18.20	54.86	22.22	33.23	19.44	8.183	0.001
PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	79.06	20.85	73.65	18.82	54.25	23.66	4.770	0.013
PARENTS 3 MONTHS PHY	72.19	16.83	61.25	21.33	42.50	18.14	7.216	0.002
PARENTS 3 MONTHS PSYCHO	84.31	15.78	78.33	20.57	59.25	25.71	4.880	0.012

Table no 25 shows the correlation between PICU stay and Parent HRQOL. The physical score at 2 weeks decreased as PICU stay increased, with a p value of 0.001.

Psychosocial score at 2 weeks was 0.013, showing significance.

Physical score at 3 months also showed similar trends, with a p value of 0.002.

Psychosocial score at 3 months had a p value of 0.012.

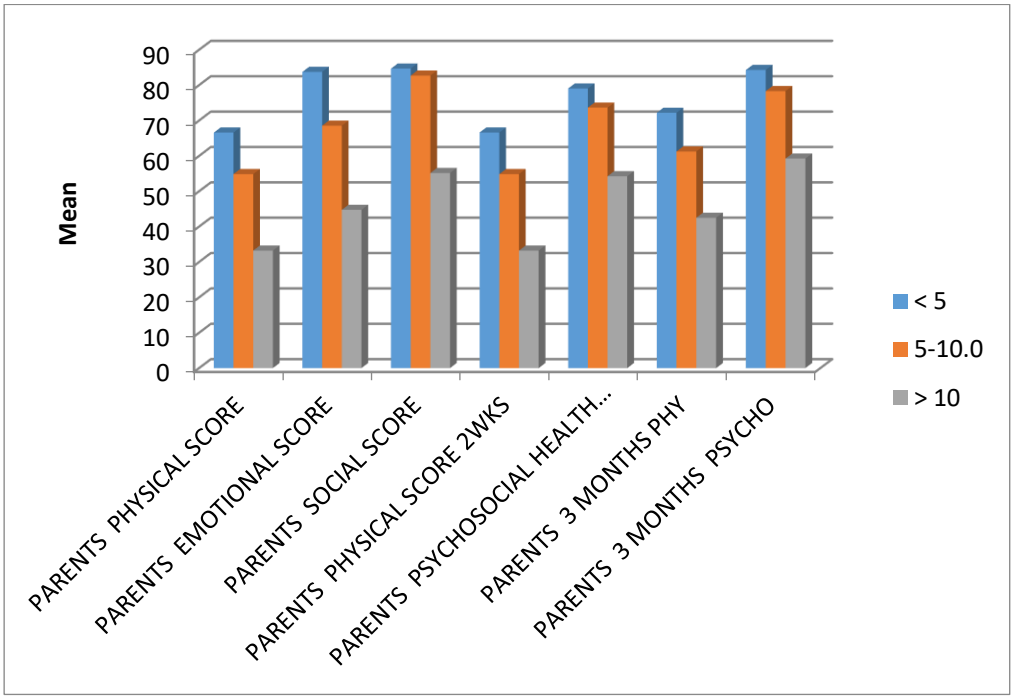

FIGURE NO 27- COMPARISON OF PICU STAY AT ADMISSION AND PARENT REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 26- TABLE SHOWING COMPARISON OF VENTILATOR DAYS AND CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

Ventilator days	< 7		> 7		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	44.79	16.96	42.39	38.75	0.019	0.892	2.40	17.27
EMOTIONAL HEALTH	41.17	29.43	71.67	23.38	3.951	0.075	-30.50	15.35
SOCIAL SCORE	84.17	20.10	67.50	34.75	1.034	0.333	16.67	16.39
PHYSICAL HEALTH SUMMARY SCORE 2 WEEKS	44.79	16.96	42.39	38.75	0.019	0.892	2.40	17.27
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 WEEKS	67.35	20.11	67.37	32.61	0.000	0.999	-0.02	15.64
3 MONTHS PHY	54.17	17.44	52.50	34.31	0.011	0.918	1.67	15.71
3 MONTHS PSYCHO	73.67	16.51	72.83	26.16	0.004	0.949	0.83	12.63

Table 26 shows that there was no significant difference between scores in various domains (children reported) and number of days of ventilator support.

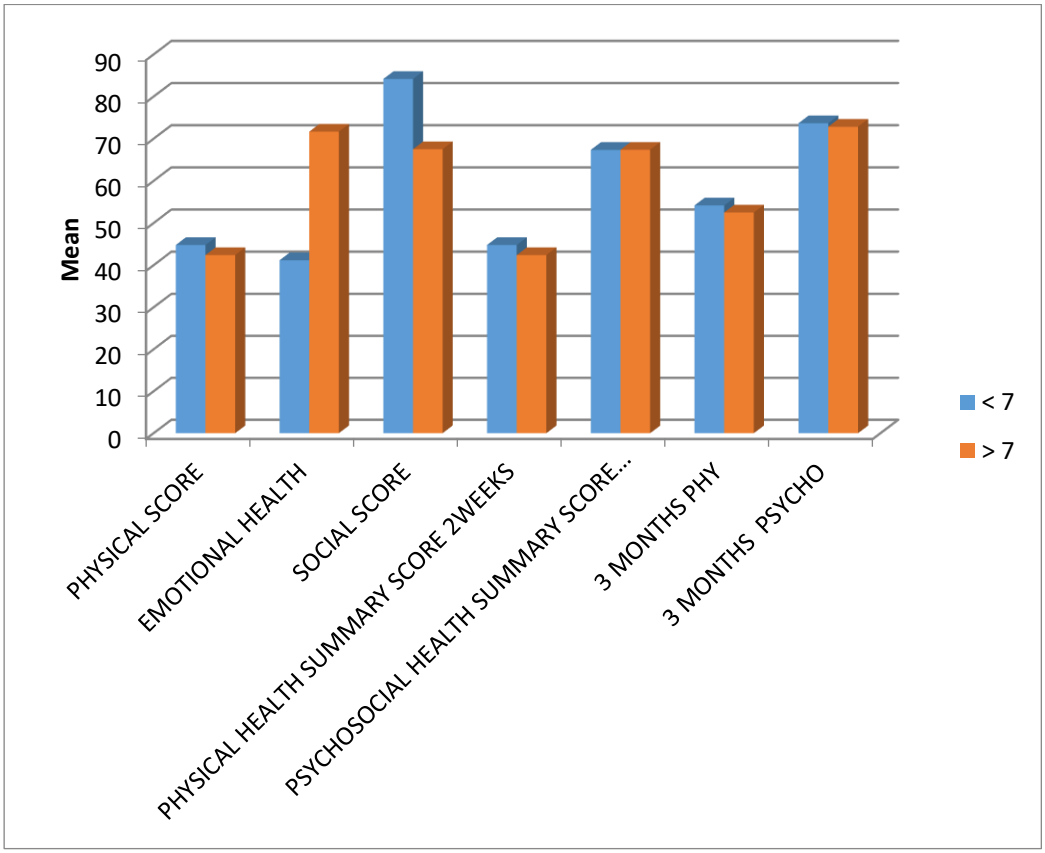

FIGURE NO 28- COMPARISON OF VENTILATOR DAYS WITH CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 27- TABLE SHOWING COMPARISON BETWEEN VENTILATOR DAYS AND PARENT REPORTED HRQOL.

Ventilator days	< 7		> 7		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PARENTS PHYSICAL SCORE	43.37	15.22	34.13	23.20	0.804	0.386	9.25	10.31
PARENTS EMOTIONAL SCORE	55.00	20.41	58.13	34.22	0.044	0.837	-3.13	14.85
PARENTS SOCIAL SCORE	82.86	20.59	58.96	26.70	3.678	0.077	23.89	12.46
PARENTS PHYSICAL SCORE 2 WKS	43.37	15.22	34.13	23.20	0.804	0.386	9.25	10.31
PARENTS PSYCHOSOCIAL HEALTH SCORE 2 WKS	67.86	18.73	60.94	24.01	0.378	0.549	6.92	11.25
PARENTS 3 MONTHS PHY	50.00	16.33	42.50	21.21	0.575	0.462	7.50	9.89
PARENTS 3 MONTHS PSYCHO	71.43	19.52	67.81	25.41	0.093	0.765	3.62	11.84

Table 27 shows that there was no significant difference between scores in various domains (parent reported) and number of days of ventilatory support.

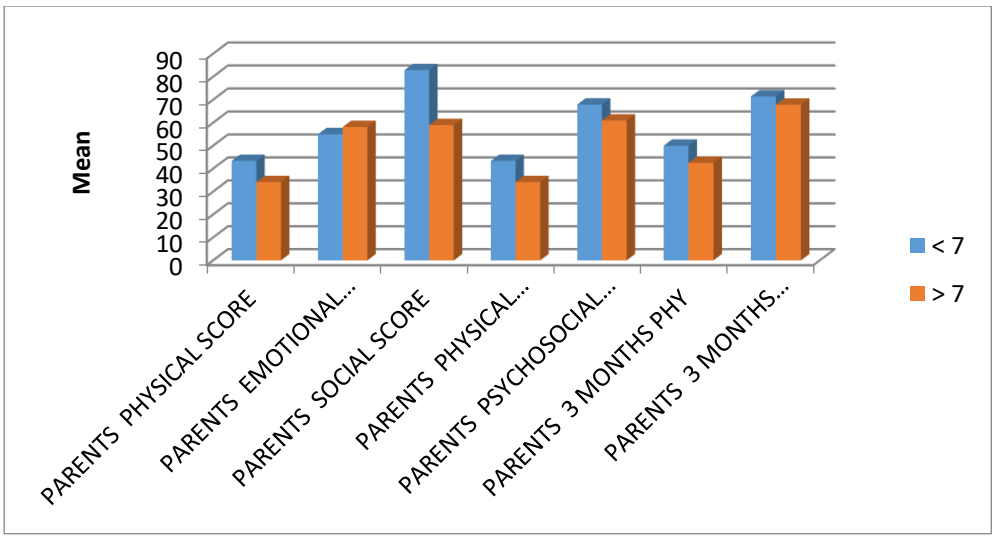

FIGURE NO 29- COMPARISON OF VENTILATOR DAYS WITH PARENT REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 28- TABLE SHOWING COMPARISON OF GCS WITH CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

GCS	< 8		9-12.0		13-15.0		F	p-value
	Mean	SD	Mean	SD	Mean	SD		
PHYSICAL SCORE	39.73	30.12	53.12	19.00	65.02	23.08	3.293	0.048
EMOTIONAL HEALTH	48.86	34.31	76.00	25.35	76.96	18.22	4.494	0.018
SOCIAL SCORE	68.57	34.73	87.00	29.07	84.11	18.36	1.416	0.256
PHYSICAL HEALTH SUMMARY SCORE 2WEEKS	39.73	30.12	53.12	19.00	65.02	23.08	3.293	0.048
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2weeks	61.31	32.55	73.50	31.05	79.29	16.93	1.886	0.166
3 MONTHS PHY	48.57	29.11	64.00	15.17	72.86	19.69	3.787	0.032
3 MONTHS PSYCHO	68.14	26.28	76.00	28.81	85.79	13.34	2.887	0.068

The physical score at 2 weeks post PICU discharge showed a directly proportional relationship with GCS.A better GCS meant better quality of life in almost all domains-except social scores (p value not significant). As a result, the p value in the psychosocial health summary score was also insignificant (p value 0.166).

Similar trends were found at 3 months post discharge P value in physical domain-0.032 and P value in psychosocial domain-0.068.

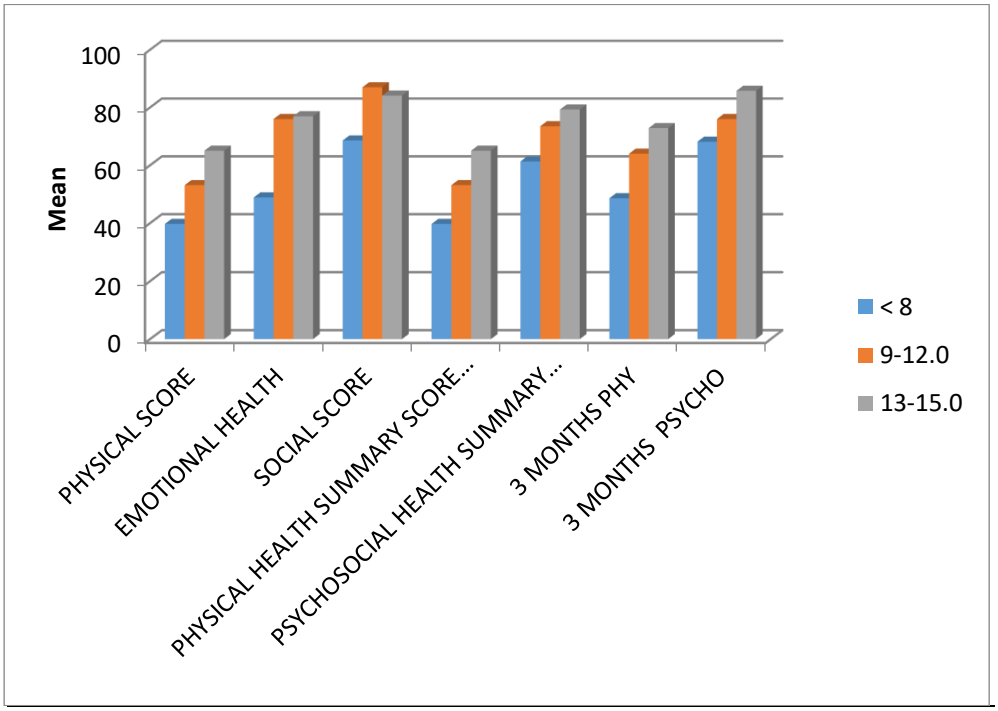

FIGURE NO 30- COMPARISON OF GCS WITH CHILD REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 29- TABLE SHOWING COMPARISON BETWEEN GCS AND PARENT REPORTED HEALTH RELATED QUALITY OF LIFE.

GCS	< 8		9-12.0		13-15.0		F	p-value
	Mean	SD	Mean	SD	Mean	SD		
PARENTS PHYSICAL SCORE	38.08	25.86	47.39	20.57	59.04	21.78	3.215	0.049
PARENTS EMOTIONAL SCORE	48.13	35.35	63.33	30.11	74.10	17.20	4.582	0.015
PARENTS SOCIAL SCORE	54.59	29.37	79.17	32.31	82.78	20.37	4.752	0.013
PARENTS PHYSICAL SCORE 2WKS	38.08	25.86	47.39	20.57	59.04	21.78	3.216	0.049
PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	53.13	28.12	64.58	32.34	76.74	16.01	4.733	0.013
PARENTS 3 MONTHS PHY	43.75	25.04	56.67	18.62	65.56	19.81	3.834	0.029
PARENTS 3 MONTHS PSYCHO	56.88	29.63	68.33	31.25	82.13	14.93	5.765	0.006

It was found that higher the GCS at admission better was the health related quality of life as reported by parents. The p value in all domains (physical at 2 weeks-0.049, psychosocial-0.013; p value at 3 months -0.029, psychosocial-0.006) was significant, thus showing a strong correlation between the 2 entities.

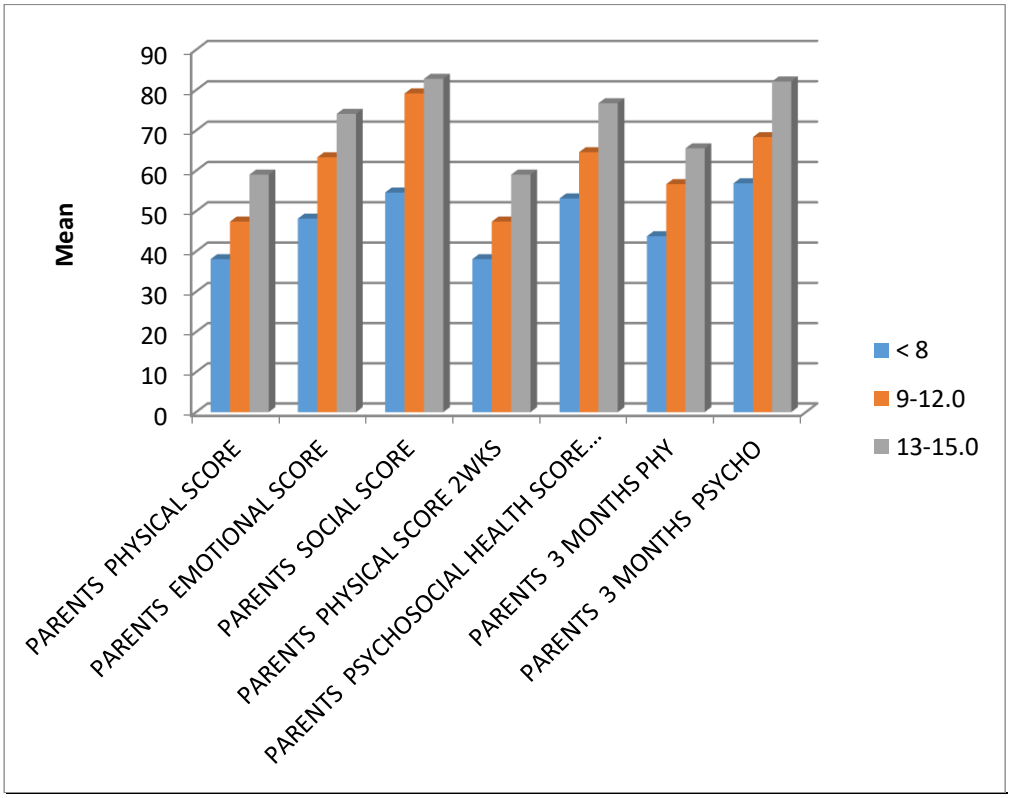

FIGURE NO 31- COMPARISON OF GCS WITH PARENT REPORTED HEALTH RELATED QUALITY OF LIFE.

TABLE 30- TABLE SHOWING CORRELATION BETWEEN PRISM AND HRQOL.

PRISM SCORE	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
	B	Std. Error	Beta	t	p-value	Lower Bound	Upper Bound
(Constant)	18.82	3.16		5.959	0.001	12.41	25.23
PHYSICAL SCORE	-0.17	0.04	-0.68	-4.765	0.001	-0.24	-0.10
EMOTIONAL HEALTH	-0.04	0.04	-0.15	-1.053	0.299	-0.11	0.04
SOCIAL SCORE	0.07	0.04	0.27	1.849	0.073	-0.01	0.16
(Constant)	20.88	2.96		7.059	0.001	14.88	26.87
PHYSICAL HEALTH SUMMARY SCORE 2WEEKS	-0.15	0.04	-0.62	-4.310	0.001	-0.23	-0.08
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2weeks	0.00	0.04	0.01	0.099	0.922	-0.08	0.09
(Constant)	23.37	3.66		6.383	0.001	15.95	30.79
3 MONTHS PHY	-0.17	0.04	-0.62	-3.979	0.001	-0.26	-0.08
3 MONTHS PSYCHO	0.00	0.05	0.01	0.066	0.948	-0.10	0.11

The domain most affected by PRISM at admission was physical. The p value was statistically significant (0.001) at both 2 weeks and 3 months.

TABLE 31- TABLE SHOWING CORRELATION OF HRQOL AT 2 WEEKS AND 3 MONTHS.

	2 WEEKS		3 MONTHS		Z	p-value
	Mean	SD	Mean	SD		
PHYSICAL HEALTH SUMMARY SCORE 2WEEKS	59.11	25.35	67.50	22.56	-7.624	0.001
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2weeks	75.42	22.52	81.48	19.07	-6.037	0.001
PARENTS PHYSICAL SCORE 2WKS	54.29	23.30	61.00	21.71	-7.351	0.001
PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	71.50	22.00	76.43	21.88	-5.898	0.001

Table 31 shows comparison of health related quality of life at 2 points at follow up. The physical and psychosocial scores at 3 months were better than at 2 weeks, and the results were statistically significant (p value-0.001). This was applicable to both children and parents.

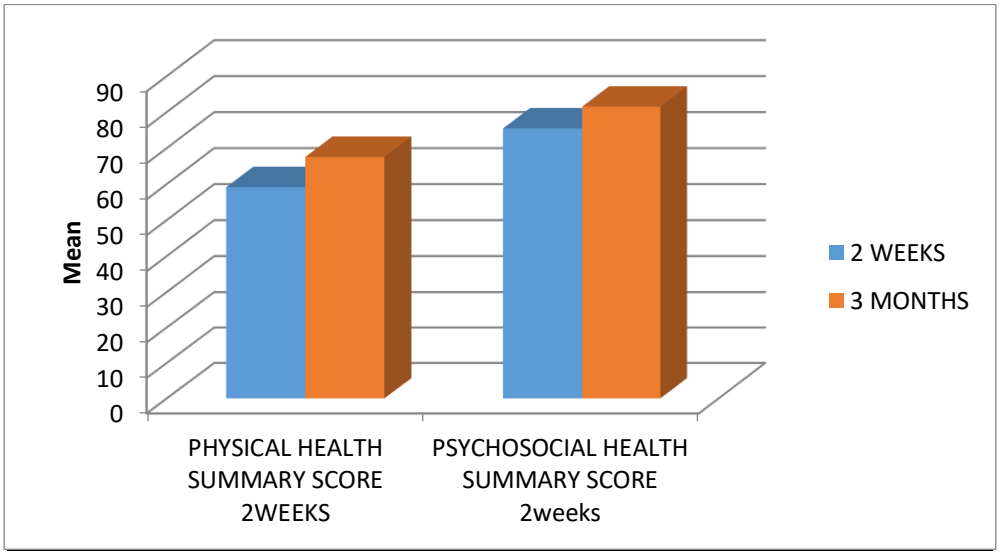

FIGURE NO 32- COMPARISON OF HRQOL AT 2 WEEKS AND 3 MONTHS.

TABLE 32(A)- CORRELATES OF PRISM AND QOL DOMAINS (CHILD REPORTED).

		PHYSICAL SCORE	EMOTIONAL HEALTH	SOCIAL SCORE	PHYSICAL HEALTH SUMMARY SCORE 2WEEKS	PSYCHOSOCIAL HEALTH SUMMARY SCORE 2weeks	3 MONTHS PHY	3 MONTHS PSYCHO
PRISM SCORE	Spearman Correlation	-0.615	-0.280	-0.097	-0.615	-0.258	-0.610	-0.321
	p-value	0.000	0.080	0.550	0.000	0.109	0.000	0.043
	N	40	40	40	40	40	40	40

TABLE 32(B)- CORRELATES OF PRISM AND QOL DOMAINS (PARENT REPORTED).

		PARENTS PHYSICAL SCORE	PARENTS EMOTIONAL SCORE	PARENTS SOCIAL SCORE	PARENTS PHYSICAL SCORE 2WKS	PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	PARENTS 3 MONTHS PHY	PARENTS 3 MONTHS PSYCHO
PRISM SCORE	Spearmann Correlation	-0.445	-0.239	-0.246	-0.445	-0.231	-0.478	-0.276
	p-value	0.001	0.094	0.085	0.001	0.106	0.000	0.052
	N	50	50	50	50	50	50	50

The Spearmann's correlates of PRISM score with QOL domains have been shown in the above table. Negative correlations indicate an inverse relationship. At 2 weeks, the p value was significant in the physical domain, while it was significant in the physical and psychosocial domain at 3 months (Child reporting).

In parent reporting, p value was significant in physical score at 2 weeks as well as 3 months.

It was observed in our study that higher the PRISM score at admission, lower was the quality of life at follow up and vice versa.

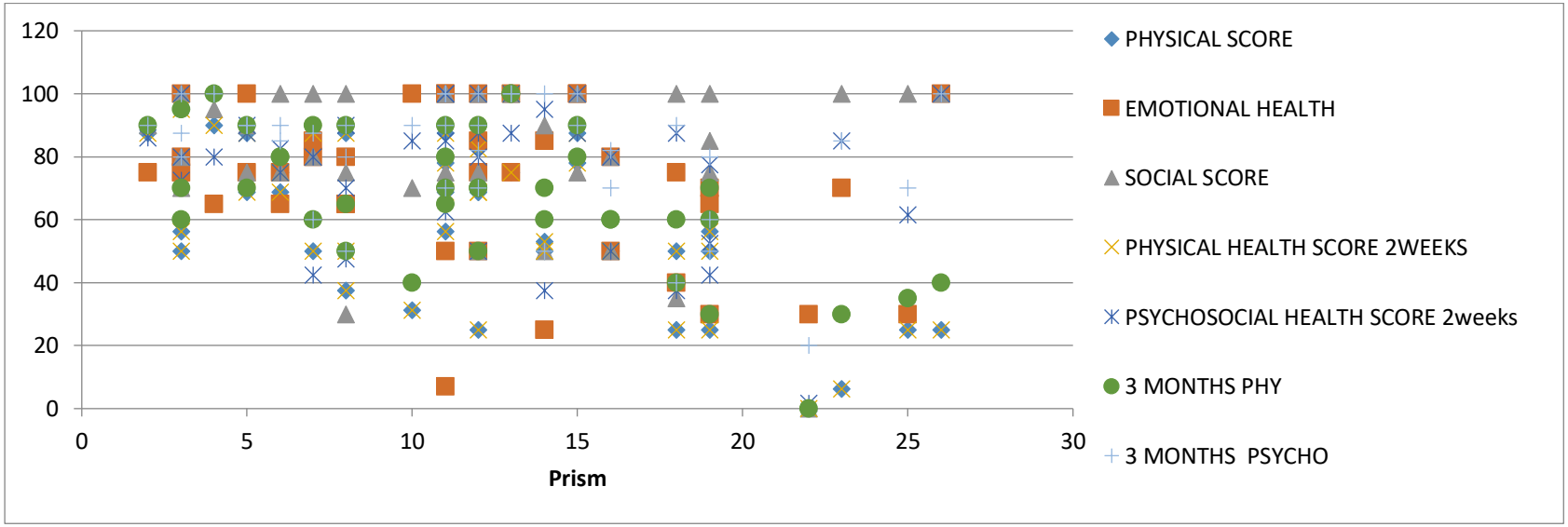

FIGURE NO 33- CORRELATES OF PRISM AND QOL DOMAINS.

TABLE 33(A)- CORRELATES OF PICU STAY AND GCS WITH HEALTH DOMAINS (CHILD REPORTED).

		Physical Score	Emotional health	Social score	Physical health summary score 2	Psychosocial health summary score 2 weeks	3 months phy	3 months psycho
PICU STAY	Spearmann Correlation	-0.447	-0.315	-0.455	-0.447	-0.411	-0.488	-0.430
	p-value	0.004	0.048	0.003	0.004	0.008	0.001	0.006
	N	40	40	40	40	40	40	40
GCS (Admission)	Spearmann Correlation	0.402	0.399	0.280	0.402	0.322	0.423	0.383
	p-value	0.010	0.011	0.080	0.010	0.043	0.007	0.015
	N	40	40	40	40	40	40	40

TABLE 33 (B)- CORRELATES OF PICU STAY AND GCS WITH HEALTH DOMAINS (PARENT REPORTED).

		Parents physical score	Parents emotional score	Parents social score	Parents physical score	Parents psychosocial health score	Parents 3 months phy	Parents 3 months psycho
PICU STAY	Spearmann Correlation	-0.417	-0.484	-0.372	-0.417	-0.362	-0.407	-0.370
	p-value	0.003	0.000	0.008	0.003	0.010	0.003	0.008
	N	50	50	50	50	50	50	50
GCS (Admission)	Spearmann Correlation	0.363	0.399	0.400	0.363	0.383	0.394	0.399
	p-value	0.010	0.004	0.004	0.010	0.006	0.005	0.004
	N	50	50	50	50	50	50	50

Spearmann's correlates of PICU stay showed inverse relation with HRQOL, whereas GCS had a directly proportional relationship with HRQOL.

The p value was consistently significant in all domains of quality of life.

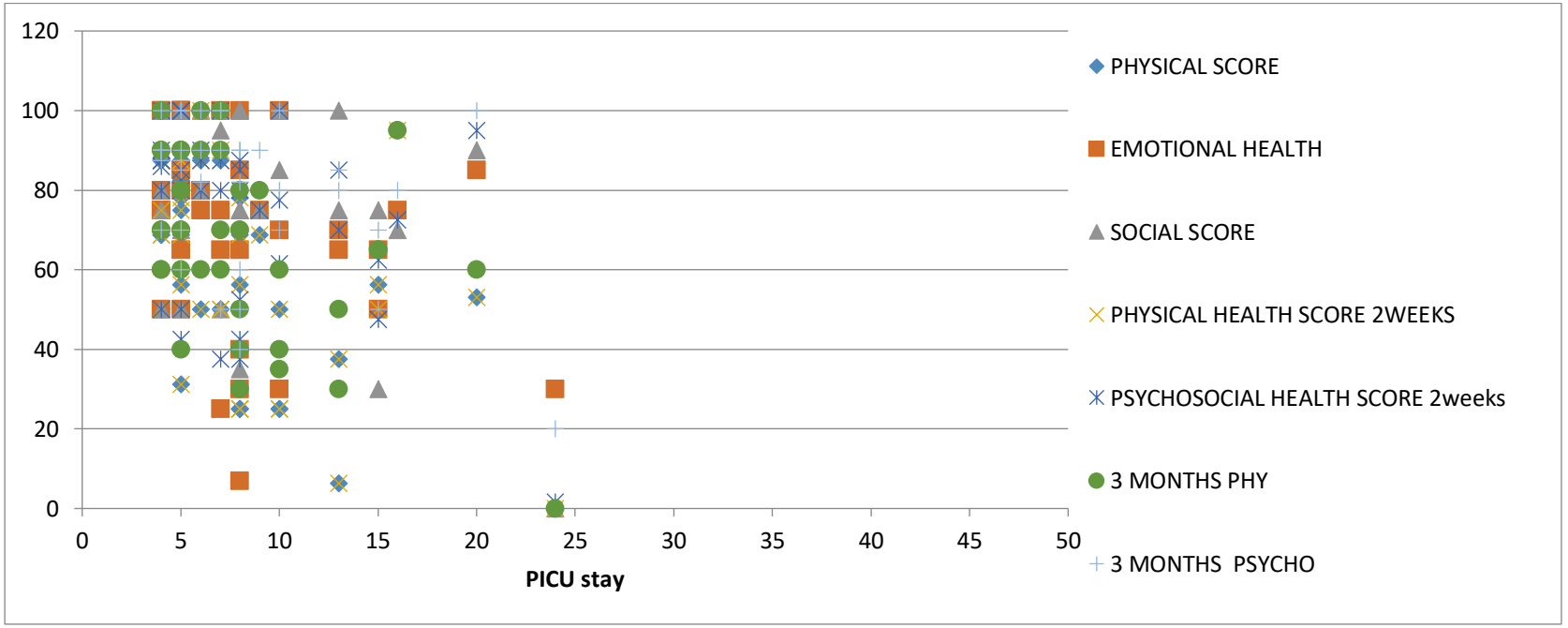

FIGURE NO 34 (A)- CORRELATES OF PICU STAY AND GCS WITH HEALTH DOMAINS (CHILD REPORTED).

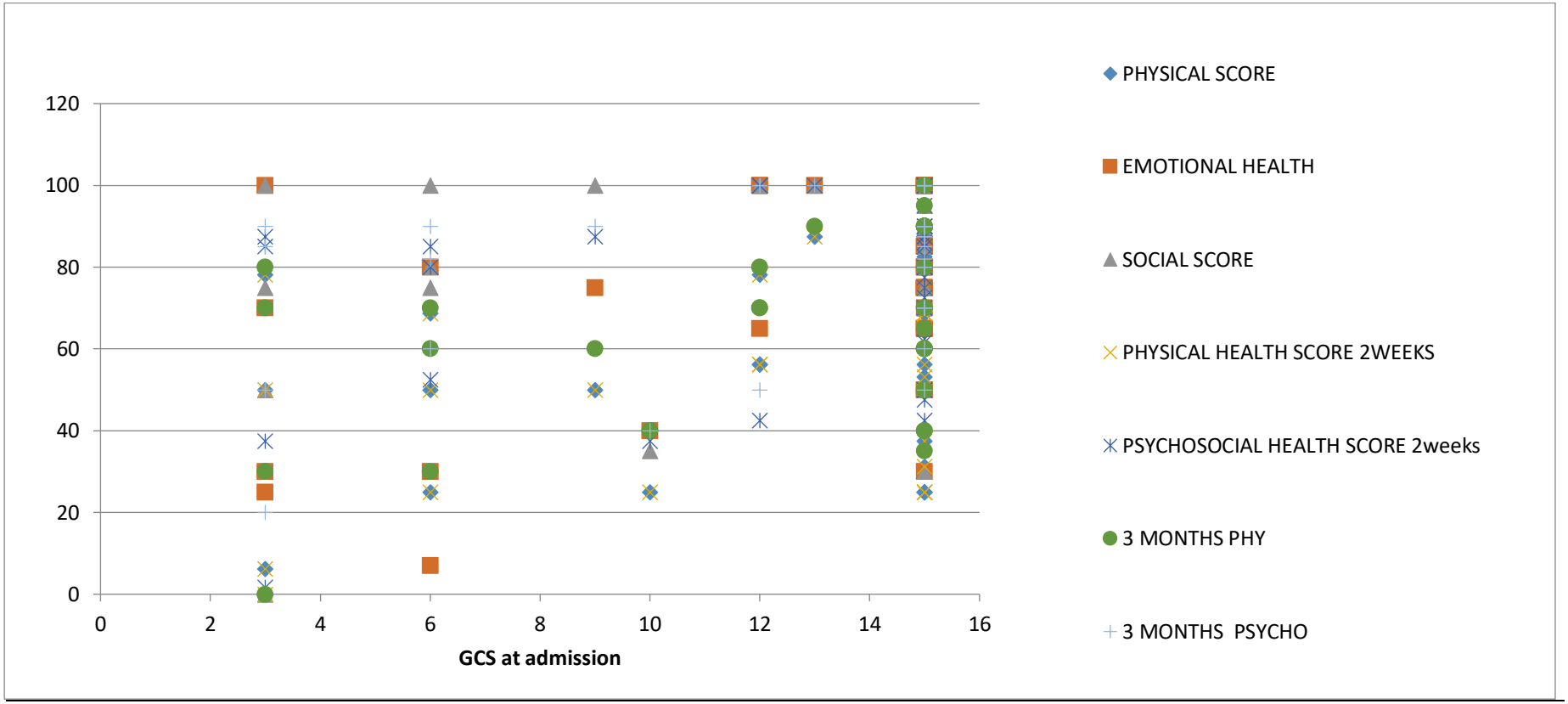

FIGURE NO 34 (B)- CORRELATES OF PICU STAY AND GCS WITH HEALTH DOMAINS (PARENT REPORTED).

TABLE 34- RELATION BETWEEN DURATION OF INOTROPIC SUPPORT AND HRQOL (CHILD VERSION).

Inotropes days	< 5		> 5		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	54.48	30.28	43.75	16.54	0.347	0.563	10.73	18.21
EMOTIONAL HEALTH	67.94	22.85	50.00	20.00	1.614	0.220	17.94	14.12
SOCIAL SCORE	72.94	28.56	86.67	12.58	0.647	0.432	-13.73	17.07
PHYSICAL HEALTH SUMMARY SCORE 2 WEEKS	54.48	30.28	43.75	16.54	0.347	0.563	10.73	18.21
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 WEEKS	69.86	25.82	67.20	8.93	0.030	0.864	2.66	15.36
3 MONTHS PHY	62.65	25.75	53.33	16.07	0.358	0.557	9.31	15.57
3 MONTHS PSYCHO	77.18	21.68	73.33	5.77	0.089	0.768	3.84	12.86

Table 34 shows how the duration of inotropic support affected the long term quality of life in children. The physical and emotional scores were lower in children who had a longer duration of inotropic support. The p values in the above cases were not significant.

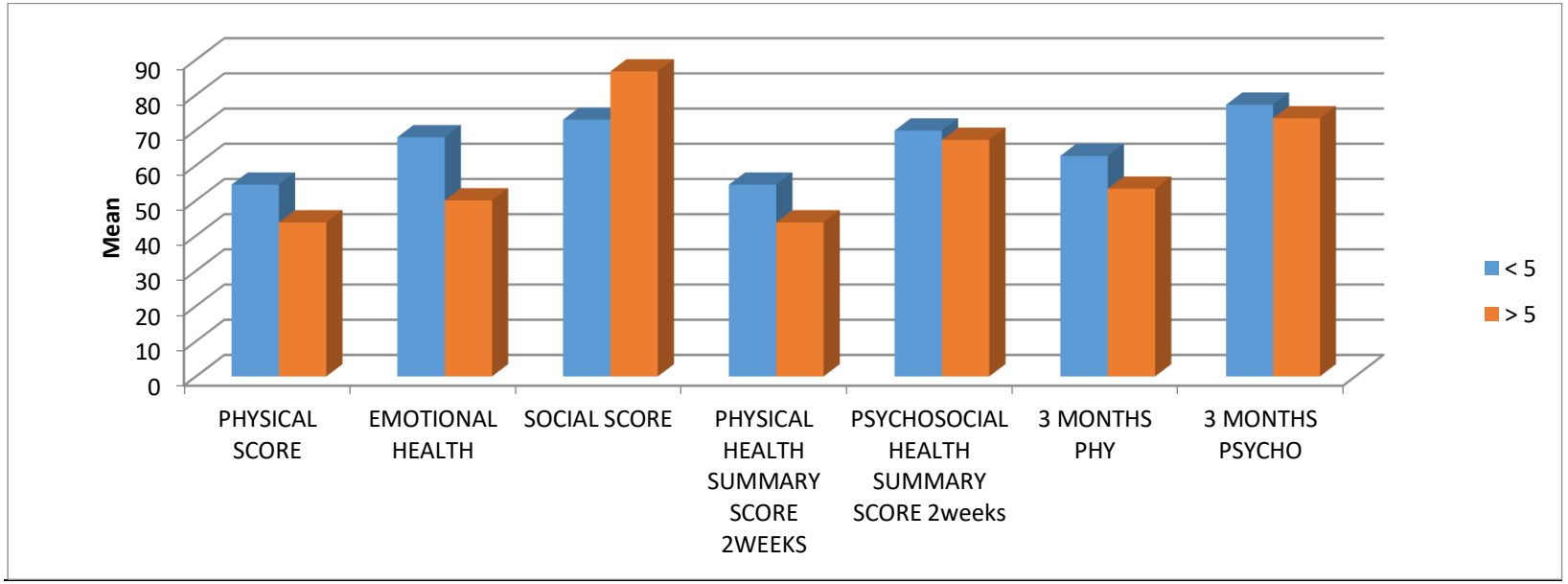

FIGURE NO 35- RELATION BETWEEN DURATION OF INOTROPIC SUPPORT AND HRQOL (CHILD VERSION).

TABLE 35- RELATION BETWEEN DURATION OF INOTROPIC SUPPORT AND HRQOL (PARENT VERSION).

Inotropes days	< 5		> 5		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PARENTS PHYSICAL SCORE	51.71	26.77	37.72	9.41	1.292	0.267	13.99	12.31
PARENTS EMOTIONAL SCORE	62.86	27.91	57.00	18.91	0.195	0.662	5.86	13.25
PARENTS SOCIAL SCORE	67.94	26.51	78.00	24.65	0.595	0.448	-10.06	13.04
PARENTS PHYSICAL SCORE 2WKS	51.71	26.77	37.72	9.41	1.292	0.267	13.99	12.31
PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	66.90	24.25	66.00	17.46	0.006	0.938	0.90	11.57
PARENTS 3 MONTHS PHY	58.57	25.16	46.00	5.48	1.199	0.284	12.57	11.48
PARENTS 3 MONTHS PSYCHO	73.93	26.16	70.00	17.32	0.101	0.754	3.93	12.39

Table 35 shows how the duration of inotropic support affected the long term quality of life in children, as per their parents. The physical and emotional scores were lower in children who had a longer duration of inotropic support. The p values in the above cases were also not significant.

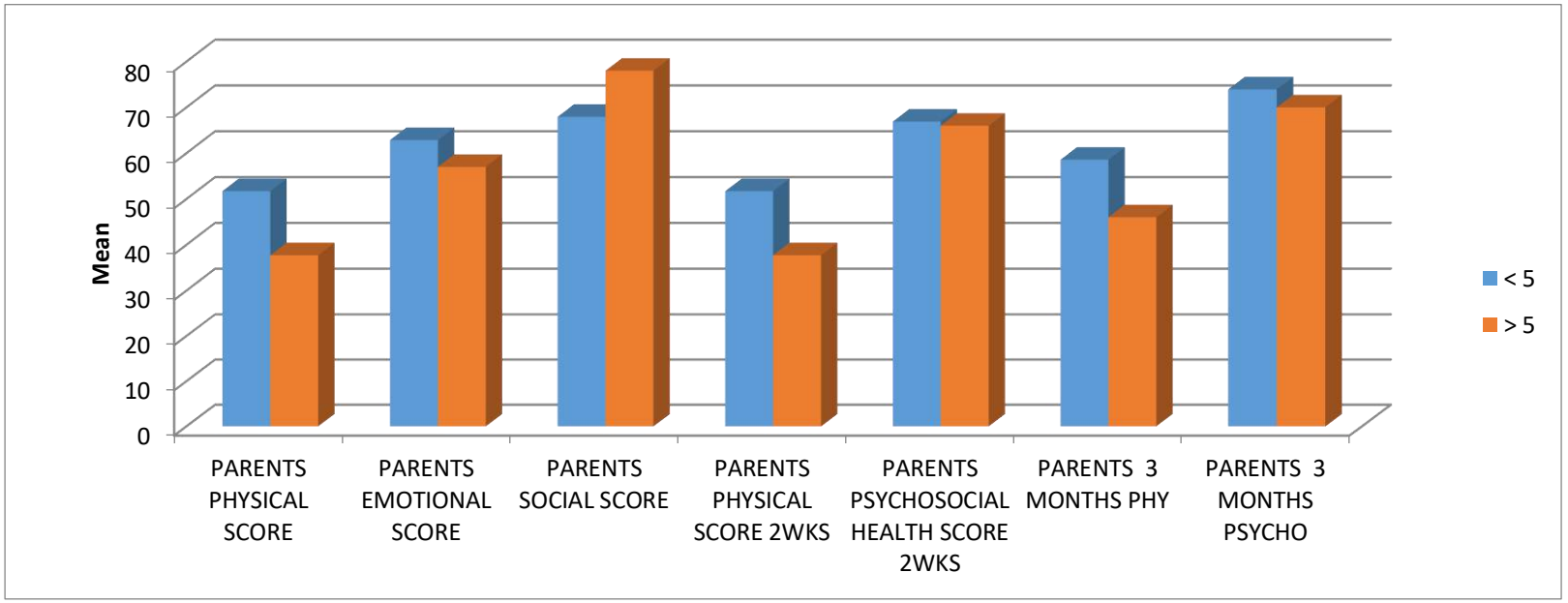

FIGURE NO 36- RELATION BETWEEN DURATION OF INOTROPIC SUPPORT AND HRQOL (PARENT VERSION).

TABLE 36- COMPARISON OF QUALITY OF LIFE BETWEEN DENGUE AND OTHER DISEASE GROUPS.

DENGUE	Y		N		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	65.10	25.49	58.05	25.56	0.623	0.537	-7.05	11.31
EMOTIONAL HEALTH	63.33	24.83	73.44	24.32	-0.936	0.355	10.11	10.80
SOCIAL SCORE	83.33	25.82	81.47	23.27	0.178	0.860	-1.86	10.46
PHYSICAL HEALTH SUMMARY SCORE 2 Weeks	65.10	25.49	58.05	25.56	0.623	0.537	-7.05	11.31
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 Weeks	72.77	21.62	75.89	22.96	-0.309	0.759	3.12	10.09
3 MONTHS PHY	69.17	21.54	67.21	23.03	0.194	0.847	-1.96	10.12
3 MONTHS PSYCHO	83.33	15.06	81.15	19.87	0.256	0.800	-2.19	8.55
PARENTS PHYSICAL SCORE	67.85	19.50	52.08	23.31	1.692	0.097	-15.77	9.32
PARENTS EMOTIONAL SCORE	68.57	18.19	68.66	25.00	-0.009	0.993	0.09	9.89
PARENTS SOCIAL SCORE	82.14	23.78	77.13	25.57	0.485	0.630	-5.01	10.33
PARENTS PHYSICAL SCORE 2WKS	67.85	19.50	52.08	23.31	1.692	0.097	-15.77	9.32
PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	74.29	19.19	71.05	22.59	0.358	0.722	-3.24	9.05
PARENTS 3 MONTHS PHY	72.86	18.90	59.07	21.72	1.582	0.120	-13.79	8.72
PARENTS 3 MONTHS PSYCHO	81.43	17.73	75.62	22.55	0.648	0.520	-5.81	8.97

As dengue accounted for majority of admissions in the infectious disease group in our ICU-therefore an attempt was made to compare the quality of life of children with dengue against other children.It was found that it did not have an impact on the long term health of children.

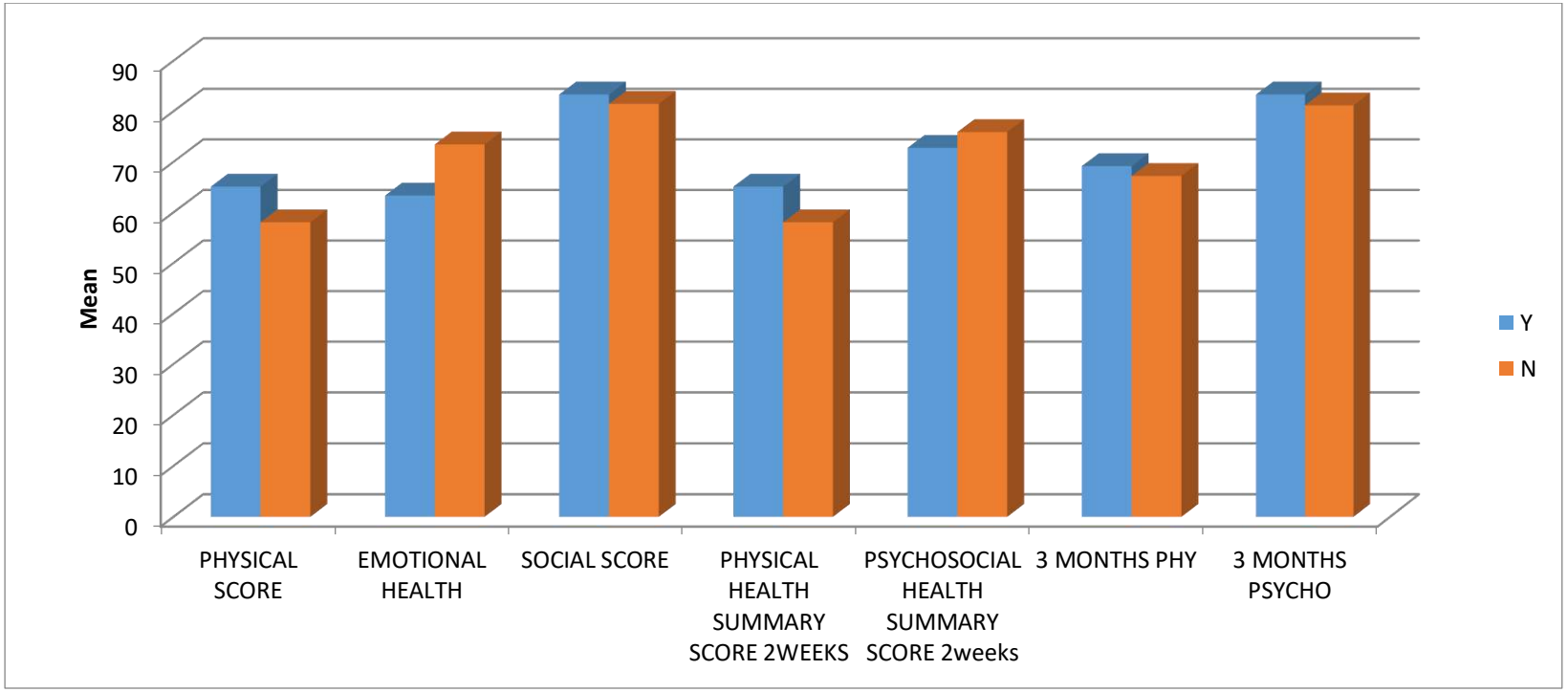

FIGURE NO 37- COMPARISON OF QUALITY OF LIFE BETWEEN DENGUE AND OTHER DISEASE GROUPS.

TABLE 37- COMPARISON OF QUALITY OF LIFE BETWEEN MIS-C AND OTHER DISEASE GROUPS.

MIS-C	Y		N		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	62.18	25.20	58.56	25.71	0.319	0.752	-3.62	11.36
EMOTIONAL HEALTH	69.17	25.38	72.41	24.52	-0.297	0.768	3.25	10.91
SOCIAL SCORE	70.83	27.64	83.68	22.40	-1.252	0.218	12.84	10.26
PHYSICAL HEALTH SUMMARY SCORE 2 WEEKS	62.18	25.20	58.56	25.71	0.319	0.752	-3.62	11.36
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 WEEKS	70.00	23.35	76.38	22.60	-0.634	0.530	6.38	10.05
3 MONTHS PHY	73.33	15.38	66.47	23.63	0.682	0.499	-6.86	10.06
3 MONTHS PSYCHO	74.50	20.24	82.71	18.90	-0.971	0.338	8.21	8.45
PARENTS PHYSICAL SCORE	56.64	18.48	53.84	24.27	0.308	0.759	-2.80	9.07
PARENTS EMOTIONAL SCORE	65.31	27.14	69.29	23.67	-0.425	0.672	3.97	9.34
PARENTS SOCIAL SCORE	70.00	22.68	79.33	25.57	-0.960	0.342	9.33	9.71
PARENTS PHYSICAL SCORE 2 WEEKS	56.64	18.48	53.84	24.27	0.308	0.759	-2.80	9.07
PARENTS PSYCHOSOCIAL HEALTH SCORE 2 WEEKS	71.88	20.52	71.43	22.50	0.052	0.959	-0.45	8.57
PARENTS 3 MONTHS PHY	61.25	19.59	60.95	22.31	0.035	0.972	-0.30	8.46
PARENTS 3 MONTHS PSYCHO	77.19	21.27	76.29	22.24	0.106	0.916	-0.90	8.53

MIS-C was a new entity this year and it was found that even though it showed greater severity at admission, but it was observed that it did not leave behind any long term sequalae. There was no statistically significant difference between the quality of life at follow up between children with MIS-C and rest of the children

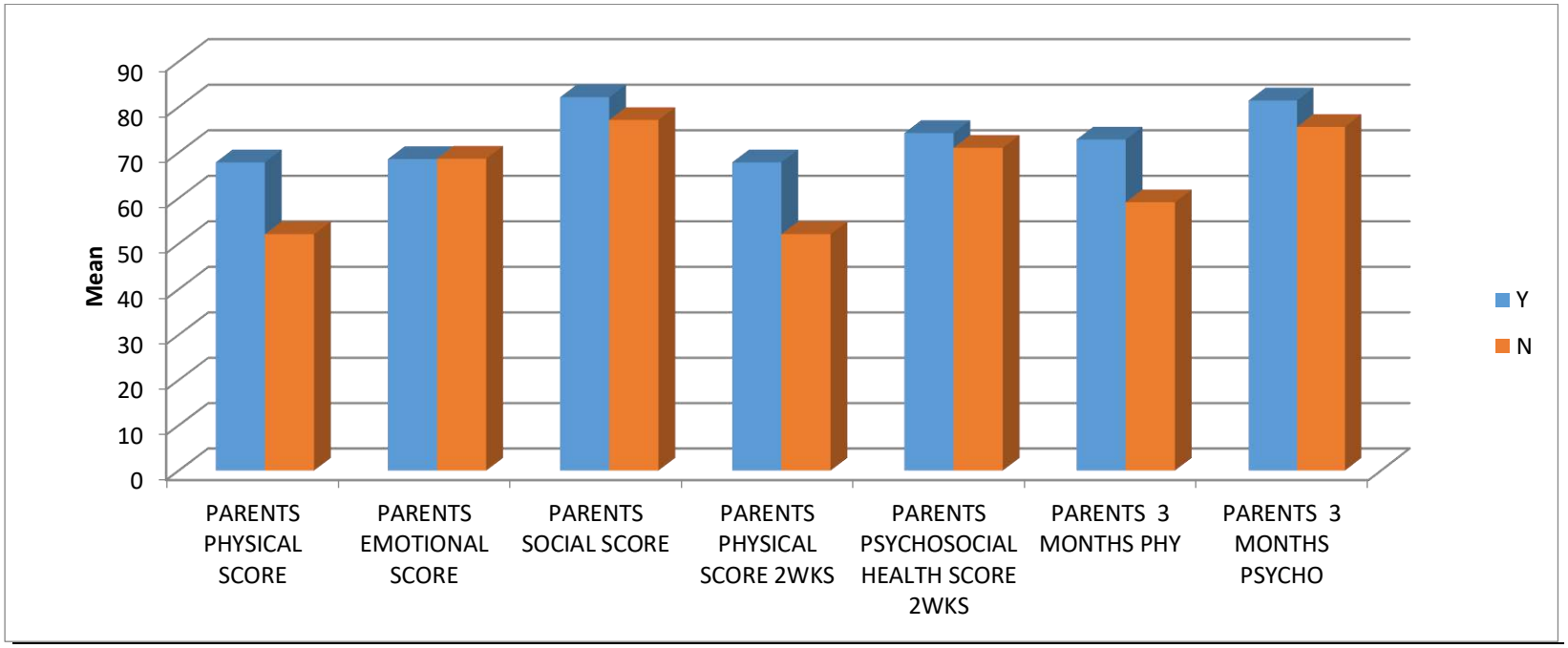

FIGURE NO 38 - COMPARISON OF QUALITY OF LIFE BETWEEN MIS-C AND OTHER DISEASES GROUP.

TABLE 38- COMPARISON OF QUALITY OF LIFE AS REPORTED BY CHILDREN VS PARENTS.

		Parents physical score	Parents emotional score	Parents social score	Parents physical score 2wks	Parents psychosocial health score 2wks	Parents 3 months phy	Parents 3 months psycho
Physical score	Spearmann Correlation	0.905	0.402	0.556	0.905	0.367	0.892	0.424
	p-value	0.000	0.010	0.000	0.000	0.020	0.000	0.006
	N	40	40	40	40	40	40	40
Emotional health	Spearmann Correlation	0.361	0.778	0.498	0.361	0.655	0.427	0.690
	p-value	0.022	0.000	0.001	0.022	0.000	0.006	0.000
	N	40	40	40	40	40	40	40
Social score	Spearmann Correlation	0.514	0.639	0.915	0.514	0.631	0.640	0.691
	p-value	0.001	0.000	0.000	0.001	0.000	0.000	0.000
	N	40	40	40	40	40	40	40
Physical health summary score 2weeks	Spearmann Correlation	0.905	0.402	0.556	0.905	0.367	0.892	0.424
	p-value	0.000	0.010	0.000	0.000	0.020	0.000	0.006
	N	40	40	40	40	40	40	40
Psychosocial health summary score 2weeks	Spearmann Correlation	0.470	0.806	0.733	0.470	0.887	0.583	0.916
	p-value	0.002	0.000	0.000	0.002	0.000	0.000	0.000
	N	40	40	40	40	40	40	40
3 months phy	Spearmann Correlation	0.868	0.452	0.585	0.868	0.405	0.868	0.466
	p-value	0.000	0.003	0.000	0.000	0.010	0.000	0.002
	N	40	40	40	40	40	40	40
3 months psycho	Spearmann Correlation	0.517	0.778	0.750	0.517	0.872	0.624	0.924
	p-value	0.001	0.000	0.000	0.001	0.000	0.000	0.000
	N	40	40	40	40	40	40	40

The Spearmann's correlation of quality of life of children as perceived by them vs their parents is shown in the above table. Perceptions of children as well as their parents were similar regarding all domains of quality of life at follow up.

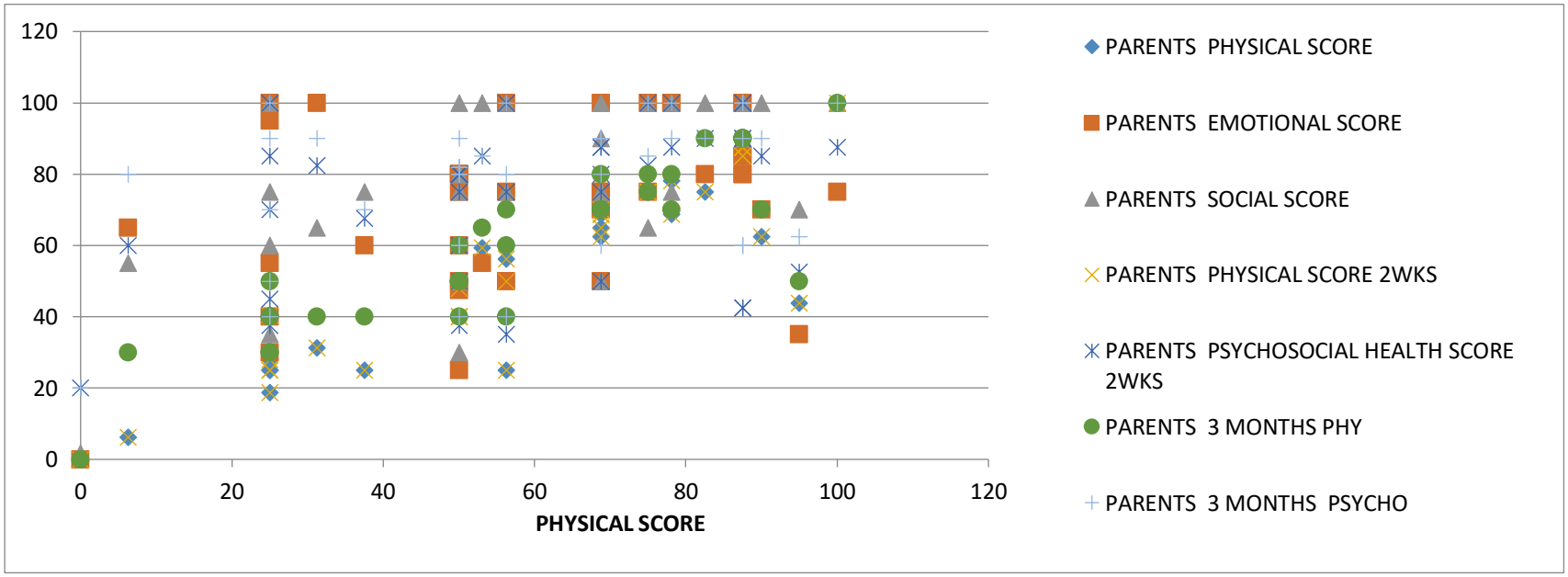

FIGURE NO 39 - COMPARISON OF QUALITY OF LIFE (PHYSICAL DOMAIN) AS REPORTED BY CHILDREN VS PARENTS.

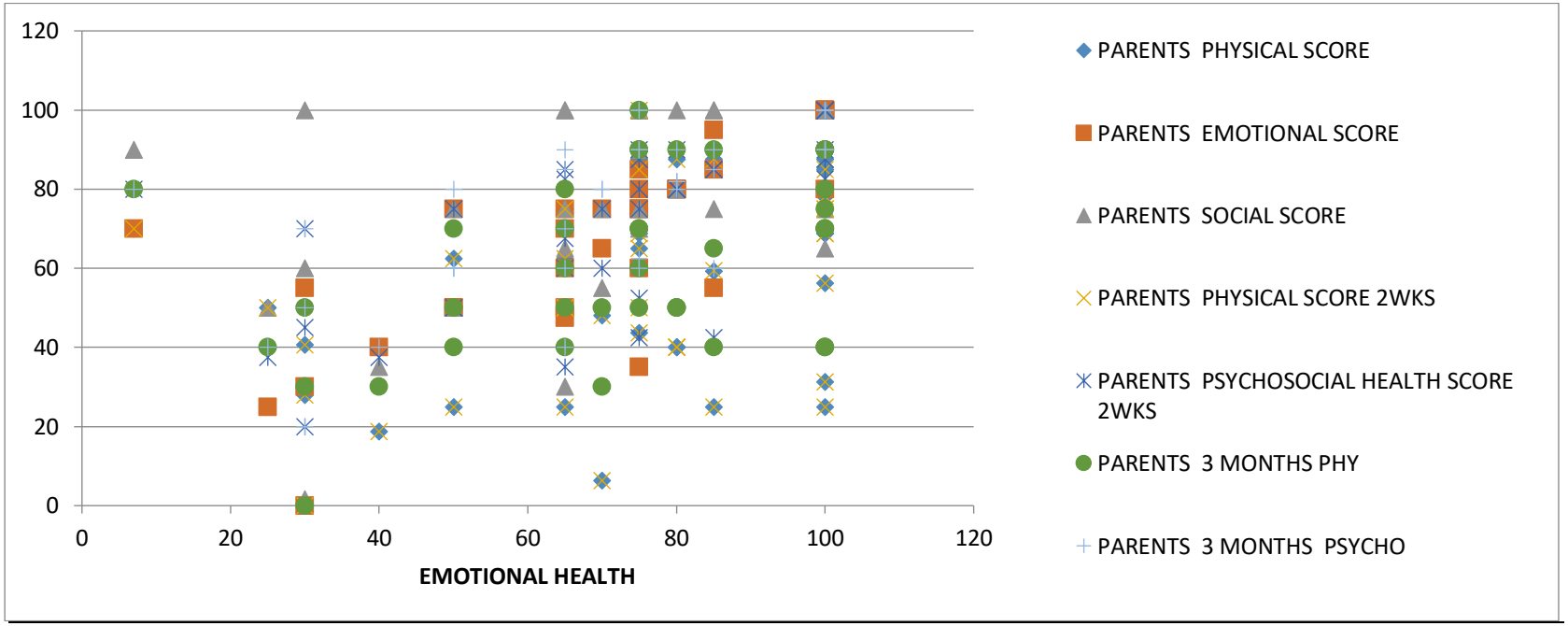

FIGURE NO 40 - COMPARISON OF QUALITY OF LIFE (EMOTIONAL DOMAIN) AS REPORTED BY CHILDREN VS PARENTS.

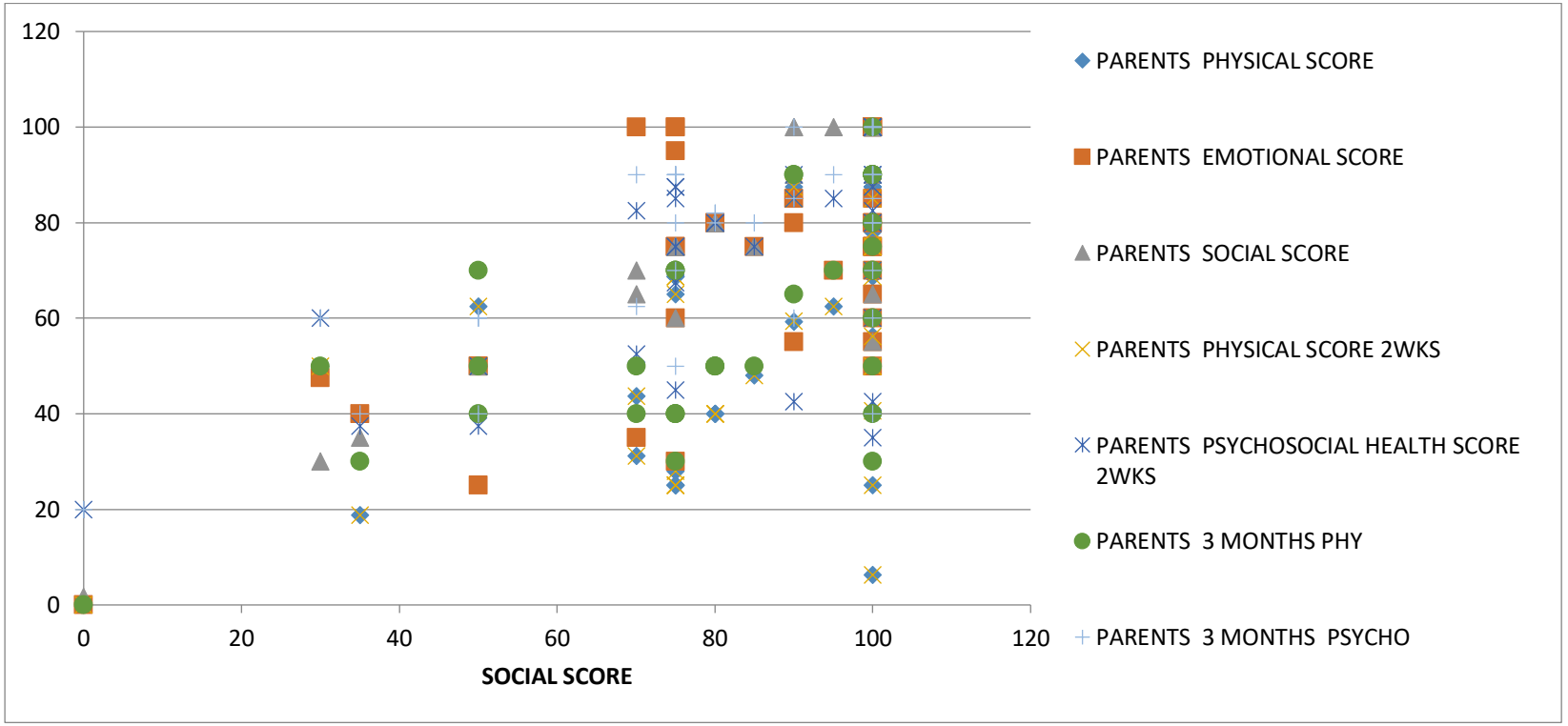

FIGURE NO 41 - COMPARISON OF QUALITY OF LIFE (SOCIAL DOMAIN) AS REPORTED BY CHILDREN VS PARENTS.

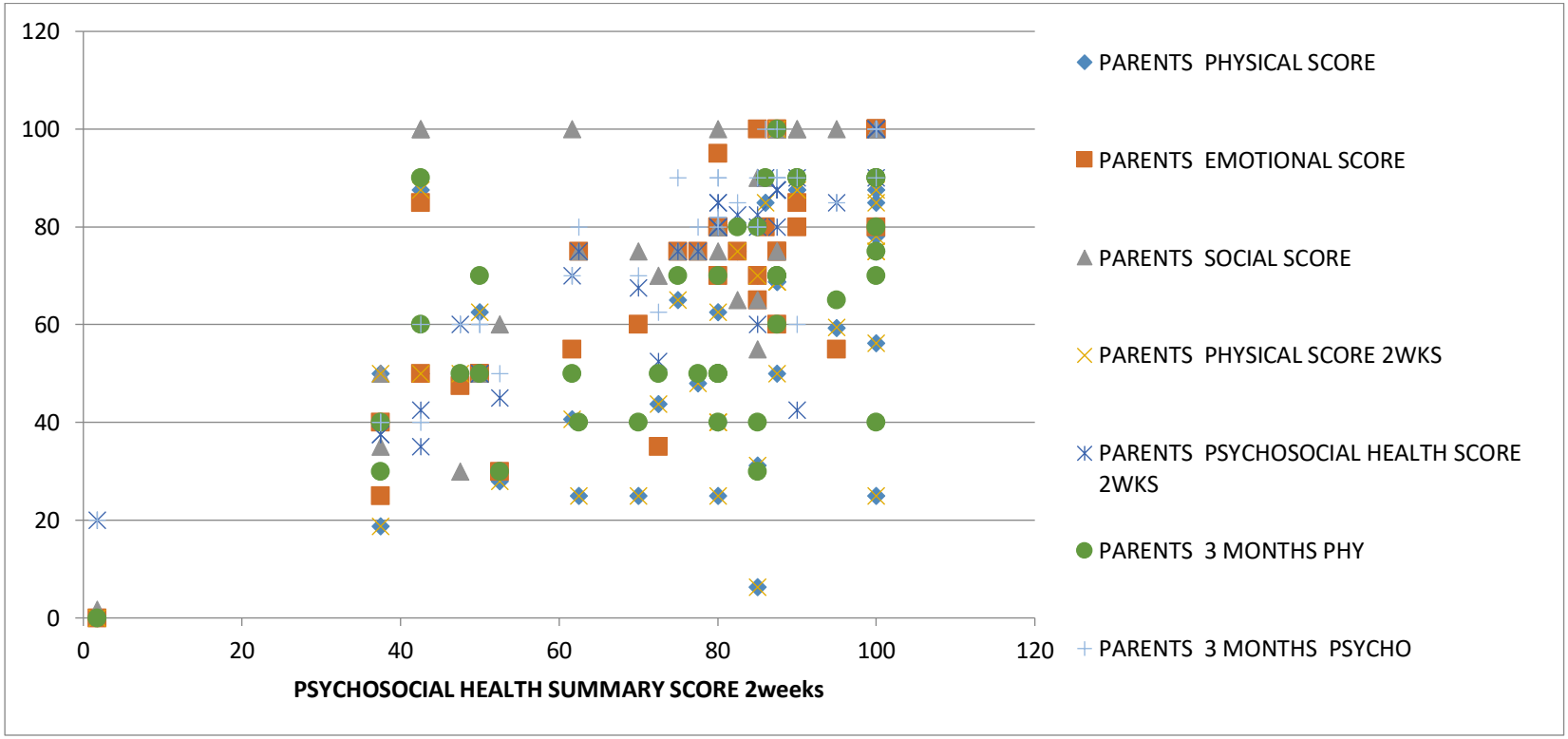

FIGURE NO 42- COMPARISON OF QUALITY OF LIFE (PSYCHOSOCIAL DOMAIN) AS REPORTED BY CHILDREN VS PARENTS-2 WEEKS.

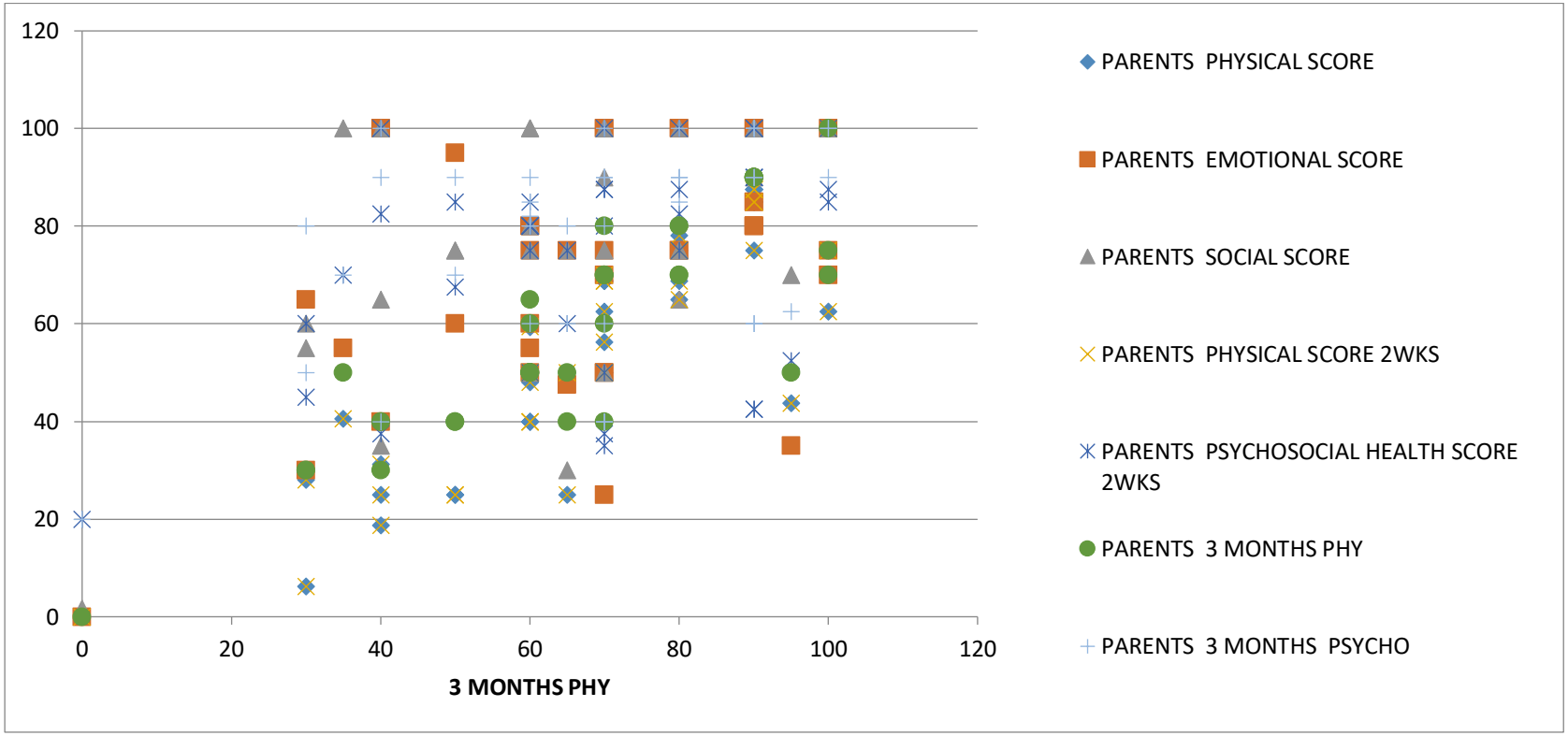

FIGURE NO 43- COMPARISON OF QUALITY OF LIFE (PHYSICAL DOMAIN) AS REPORTED BY CHILDREN VS PARENTS AT 3 MONTHS.

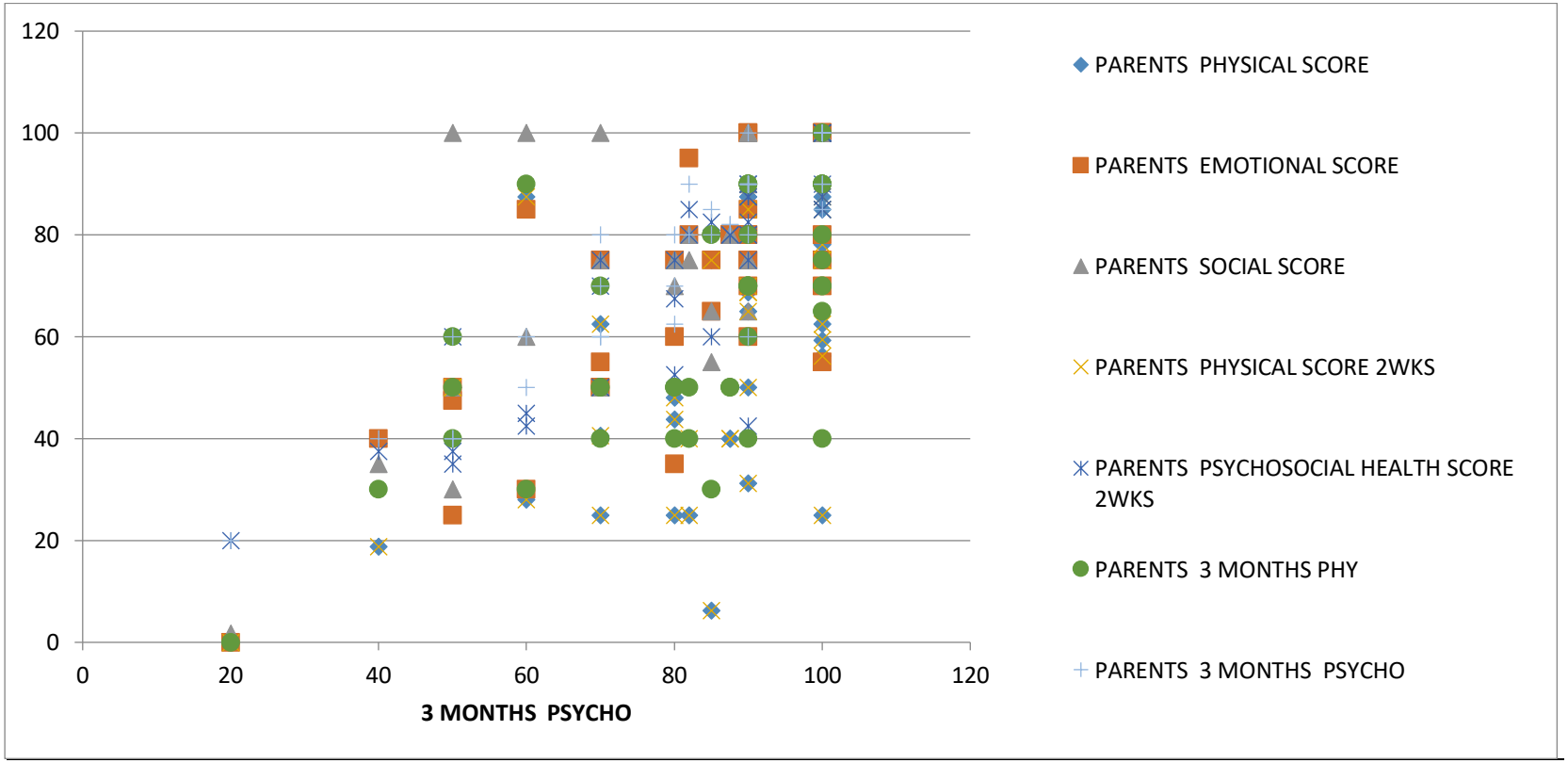

FIGURE NO 44- COMPARISON OF QUALITY OF LIFE (PSYCHOSOCIAL DOMAIN) AS REPORTED BY CHILDREN VS PARENTS AT 3 MONTHS.

TABLE 39- COMPARISON OF NUTRITIONAL STATUS AT ADMISSION WITH HRQOL.

NUTRITIONAL STATUS AT ADMISSION	Abnormal		Normal		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	74.19	21.58	54.08	24.80	2.287	0.028	-20.10	8.79
EMOTIONAL HEALTH	77.50	23.60	70.07	24.70	0.833	0.410	-7.43	8.93
SOCIAL SCORE	79.50	25.87	82.50	22.85	-0.348	0.730	3.00	8.62
PHYSICAL HEALTH SUMMARY SCORE 2 WEEKS	74.19	21.58	54.08	24.80	2.287	0.028	-20.10	8.79
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 WEEKS	73.85	26.51	75.94	21.52	-0.251	0.803	2.09	8.33
3 MONTHS PHY	80.50	18.63	63.17	22.34	2.206	0.034	-17.33	7.86
3 MONTHS PSYCHO	81.00	20.79	81.63	18.84	-0.090	0.929	0.63	7.05
PARENTS PHYSICAL SCORE	62.86	23.77	51.58	22.79	1.480	0.145	-11.28	7.62
PARENTS EMOTIONAL SCORE	69.58	27.75	68.36	23.11	0.153	0.879	-1.23	8.03
PARENTS SOCIAL SCORE	76.25	26.04	78.33	25.20	-0.248	0.805	2.08	8.41
PARENTS PHYSICAL SCORE 2WKS	62.86	23.77	51.58	22.79	1.480	0.145	-11.28	7.62
PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	69.17	27.21	72.24	20.46	-0.418	0.678	3.07	7.35
PARENTS 3 MONTHS PHY	67.92	21.47	58.82	21.61	1.274	0.209	-9.10	7.14
PARENTS 3 MONTHS PSYCHO	75.21	24.18	76.82	21.43	-0.220	0.827	1.61	7.32

Nutritional status of a child at admission seems to have an effect of quality of life; children with a good physical health seem to recover faster and thus will have a better quality of life at follow up. But in our study, the reverse was seen.

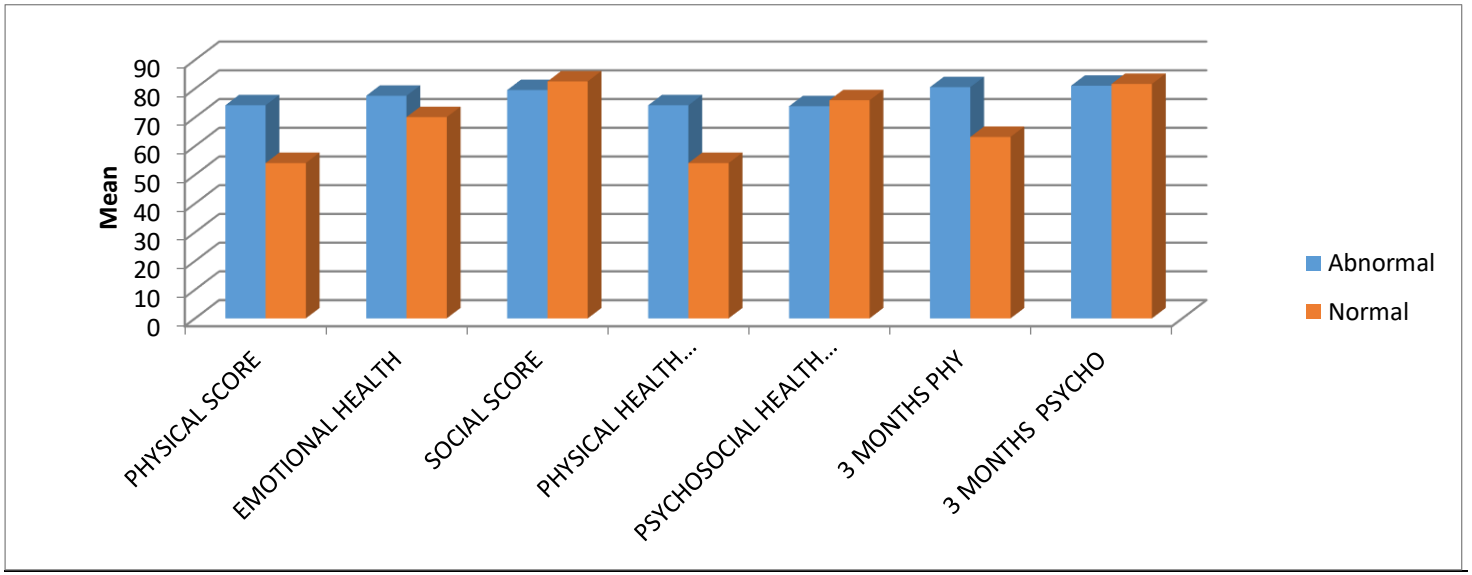

FIGURE NO 45- COMPARISON OF NUTRITIONAL STATUS AT ADMISSION WITH HRQOL (CHILD REPORTED).

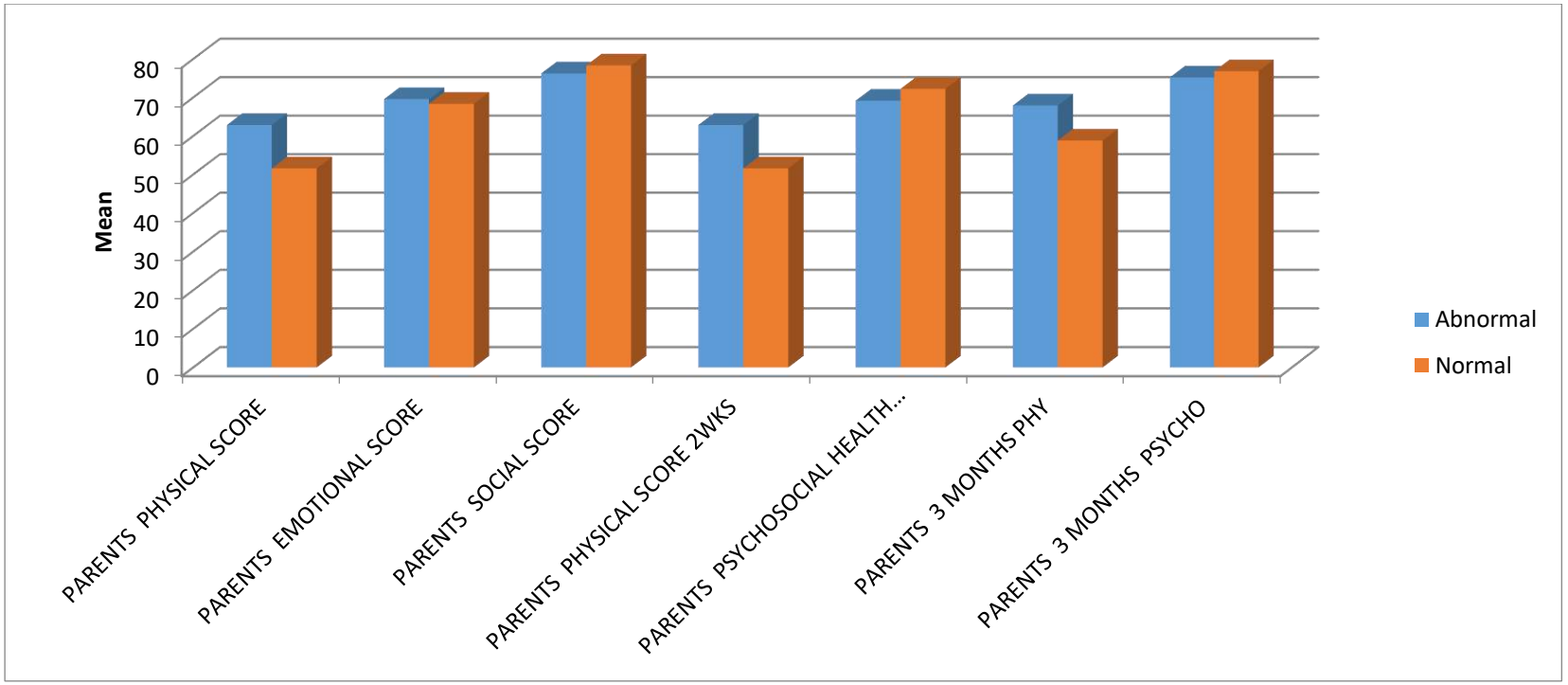

FIGURE NO 46- COMPARISON OF NUTRITIONAL STATUS AT ADMISSION WITH HRQOL (PARENT REPORTED).

TABLE 40- COMPARISON OF QUALITY OF LIFE OF NEUROLOGICAL CASES WITH REST OF PATIENTS.

Neurological	Y		N		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	53.57	36.24	60.28	23.00	-0.631	0.532	-6.71	10.63
EMOTIONAL HEALTH	75.00	24.15	71.27	24.71	0.364	0.718	3.73	10.25
SOCIAL SCORE	78.57	36.60	82.42	20.24	-0.393	0.697	-3.85	9.82
PHYSICAL HEALTH SUMMARY SCORE 2 WEEKS	53.57	36.24	60.28	23.00	-0.631	0.532	-6.71	10.63
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 WEEKS	62.03	34.61	78.26	18.60	-1.779	0.083	-16.23	9.12
3 MONTHS PHY	61.43	33.88	68.79	19.88	-0.780	0.440	-7.36	9.44
3 MONTHS PSYCHO	70.71	28.64	83.76	16.09	-1.682	0.101	-13.04	7.76
PARENTS PHYSICAL SCORE	48.89	32.44	55.47	21.13	-0.764	0.448	-6.58	8.61
PARENTS EMOTIONAL SCORE	68.33	30.41	68.72	22.82	-0.043	0.966	-0.39	8.93
PARENTS SOCIAL SCORE	70.19	36.34	79.51	22.24	-1.007	0.319	-9.32	9.26
PARENTS PHYSICAL SCORE 2 WEEKS	48.89	32.44	55.47	21.13	-0.765	0.448	-6.59	8.61
PARENTS PSYCHOSOCIAL HEALTH SCORE 2 WEEKS	61.39	26.70	73.72	20.55	-1.544	0.129	-12.33	7.99
PARENTS 3 MONTHS PHY	54.44	29.63	62.44	19.75	-1.000	0.322	-7.99	7.99
PARENTS 3 MONTHS PSYCHO	67.78	28.63	78.33	20.05	-1.320	0.193	-10.55	7.99

It was observed in our study that a significant number of children had neurological problems. Also, these categories of patients have been found to have long term cognitive deficits and hence the comparison of their quality of life with rest of the children becomes important. But in our study, no significant difference was found between the two groups.

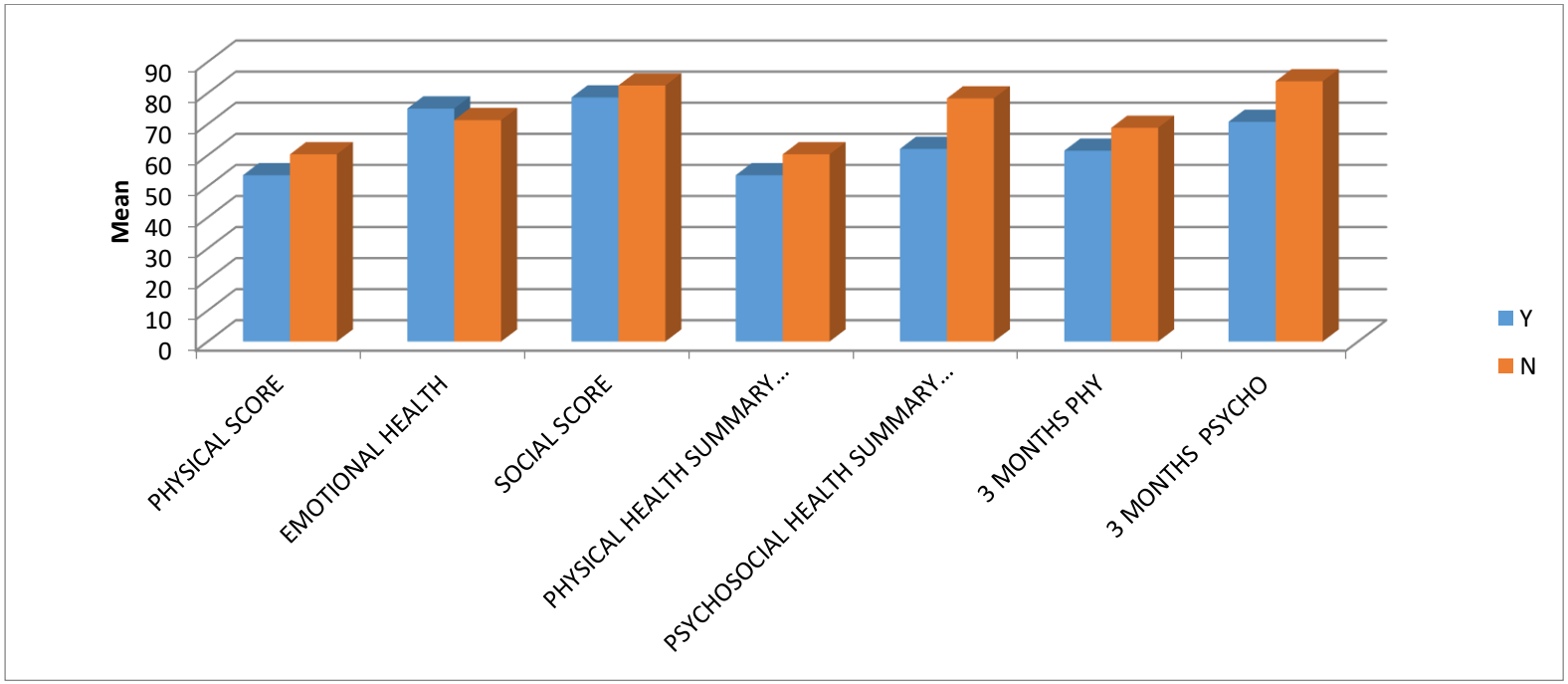

Figure 47 - COMPARISON OF QUALITY OF LIFE OF NEUROLOGICAL CASES WITH REST OF PATIENTS (CHILD REPORTED)

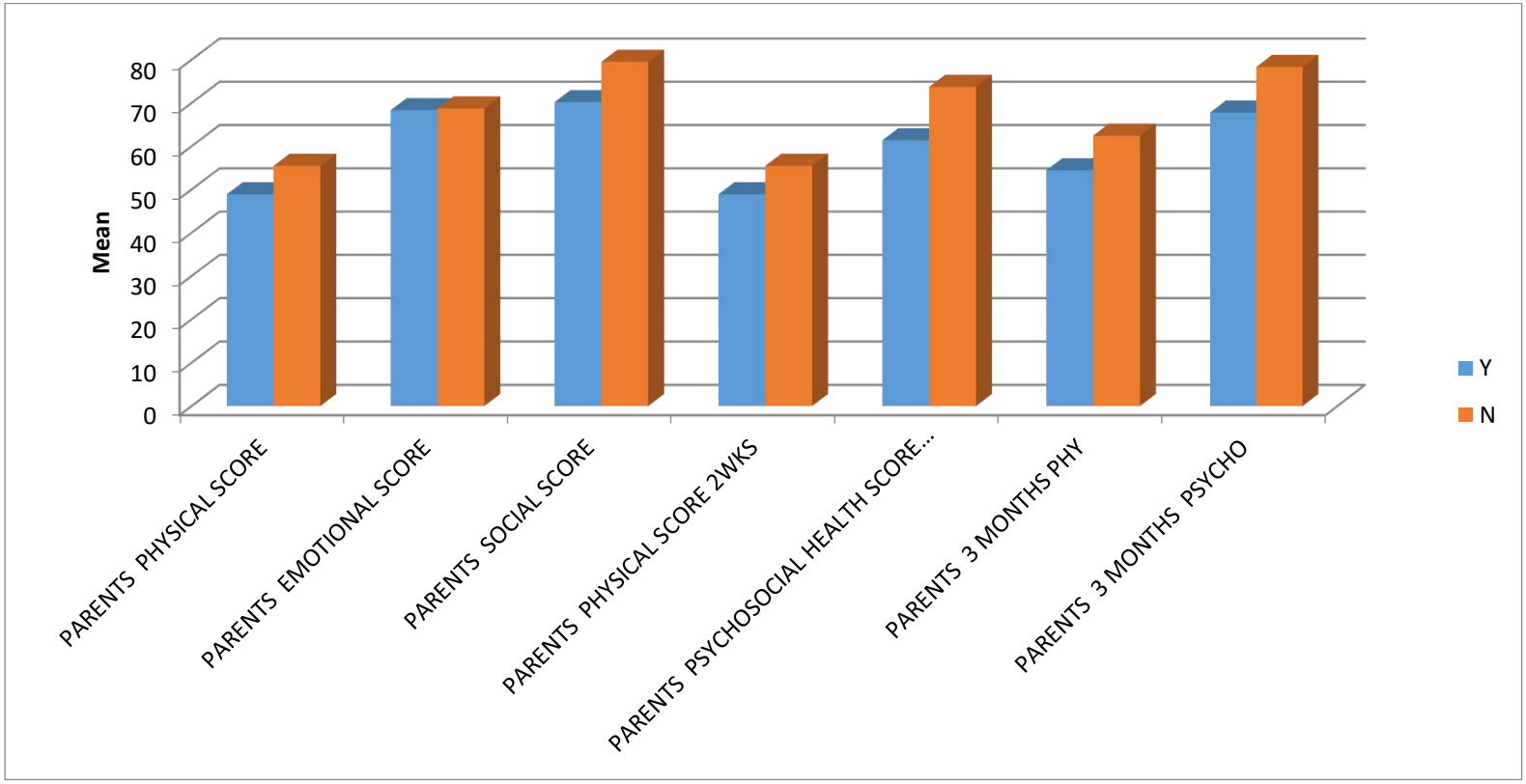

FIGURE NO 48 -COMPARISON OF QUALITY OF LIFE OF NEUROLOGICAL CASES WITH REST OF PATIENTS (PARENT REPORTED).

TABLE 41- COMPARISON OF QUALITY OF LIFE OF TBI CASES WITH REST OF PATIENTS.

Trauma	N		Y		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	59.51	25.04	55.46	31.90	0.300	0.766	4.05	13.52
EMOTIONAL HEALTH	71.31	23.73	77.50	33.04	-0.478	0.635	-6.19	12.96
SOCIAL SCORE	81.94	24.30	80.00	13.54	0.156	0.877	1.94	12.45
PHYSICAL HEALTH SCORE 2WEEKS	59.51	25.04	55.46	31.90	0.300	0.766	4.05	13.52
PSYCHOSOCIAL HEALTH SCORE 2 WEEKS	75.05	23.18	78.75	17.62	-0.308	0.760	-3.70	12.01
3 MONTHS PHY	68.33	22.04	60.00	29.44	0.696	0.491	8.33	11.97
3 MONTHS PSYCHO	81.36	19.64	82.50	15.00	-0.112	0.912	-1.14	10.18
PARENTS PHYSICAL SCORE	54.32	23.12	53.88	29.06	0.036	0.971	0.45	12.27
PARENTS EMOTIONAL SCORE	67.88	23.39	77.50	33.04	-0.765	0.448	-9.62	12.57
PARENTS SOCIAL SCORE	78.08	25.82	75.00	17.80	0.233	0.817	3.08	13.24
PARENTS PHYSICAL SCORE 2 WEEKS	54.33	23.12	53.88	29.06	0.037	0.971	0.45	12.27
PARENTS PSYCHOSOCIAL HEALTH SCORE 2 WEEKS	71.09	22.25	76.25	21.07	-0.447	0.657	-5.16	11.56
PARENTS 3 MONTHS PHY	61.30	21.48	57.50	27.54	0.333	0.741	3.80	11.42
PARENTS 3 MONTHS PSYCHO	76.12	22.21	80.00	20.00	-0.337	0.737	-3.88	11.51

The quality of life of children who suffered from Traumatic Brain Injury was compared with the rest of the children. The mean scores in the physical category at 2 weeks and 3 months were lower in the TBI category as compared to rest of the children, but the results were not statistically significant. It was also observed that emotional and social

scores were not affected much in either of the groups. In the Parent reporting, the physical and social scores were lower as compared to other children, while the emotional and psychosocial scores were higher at 2 weeks and 3 months. The results were not statistically significant in this category too.

TABLE 42-DIFFERENCE OF QUALITY OF LIFE OF VENTILATED VS NON VENTILATED PATIENTS.

INVASIVE VENTILATION(Y/N)	N		Y		Z	p-value	Mean Difference	Std. Error Difference
	Mean	SD	Mean	SD				
PHYSICAL SCORE	65.76	21.06	43.59	28.54	2.737	0.009	22.17	8.10
EMOTIONAL HEALTH	78.57	18.40	56.42	29.93	2.872	0.007	22.15	7.71
SOCIAL SCORE	84.29	20.85	75.83	28.43	1.051	0.300	8.45	8.04
PHYSICAL HEALTH SUMMARY SCORE 2 WEEKS	65.76	21.06	43.59	28.54	2.737	0.009	22.17	8.10
PSYCHOSOCIAL HEALTH SUMMARY SCORE 2 WEEKS	78.88	20.49	67.36	25.83	1.506	0.140	11.52	7.65
3 MONTHS PHY	73.57	18.25	53.33	25.97	2.823	0.008	20.24	7.17
3 MONTHS PSYCHO	85.00	17.47	73.25	20.86	1.840	0.074	11.75	6.39
PARENTS PHYSICAL SCORE	61.08	21.51	38.44	19.78	3.489	0.001	22.64	6.49
PARENTS EMOTIONAL SCORE	73.79	20.60	56.67	27.69	2.423	0.019	17.12	7.07
PARENTS SOCIAL SCORE	81.14	24.29	70.11	26.27	1.436	0.157	11.03	7.68
PARENTS PHYSICAL SCORE 2 WEEKS	61.08	21.51	38.44	19.78	3.490	0.001	22.64	6.49
PARENTS PSYCHOSOCIAL HEALTH SCORE 2 WEEKS	74.64	21.85	64.17	21.25	1.566	0.124	10.48	6.69
PARENTS 3 MONTHS PHY	67.43	19.79	46.00	18.82	3.558	0.001	21.43	6.02
PARENTS 3 MONTHS PSYCHO	79.40	21.40	69.50	22.12	1.484	0.144	9.90	6.67

Table 42 shows the difference between quality of life between ventilated and non ventilated children in PICU.

It was found that the mean scores in the physical and emotional category were lower in children who were on ventilator support. However, the results in the social and psychosocial category at 2 weeks and 3 months were not statistically significant in the child as well as parent report.

DISCUSSION

There has been ample data on the improved practices and flourishing pediatric intensive care units in our country and worldwide. However there is paucity of data regarding quality of life in children after stay in the ICU and the factors modifying the quality of life in those children. Patient long-term outcome has become the cornerstone of measuring the effectiveness of PICU management for evaluating hospital care. The long-term QOL will remain good for the majority of children treated in PICU. Severity of illness is an important indicator of QOL of children treated in PICU .The present study was conducted in the PICU follow up clinic in the outpatient Pediatric department on children from 2 -18 years of age after discharge from the Pediatric ICU of Dayanand Medical College and Hospital, Ludhiana after a minimum stay of 3 days, who were called up for follow up within 2 weeks of discharge and subsequently at 3 months after discharge. The HRQoL Questionnaire-Peds Quality of Life Inventory (Version 4.0) was used to assess the quality of life in children. It has also been shown, in a number of studies internationally, to discriminate between healthy children and those with a wide range of health conditions, including asthma, cancer, and diabetes. Increasingly, HRQOL has been proposed as an important health outcome measure, not only for clinical trials, but also for critical care clinical practice improvement strategies and healthcare service evaluation. [57] Baseline pre admission HRQOL assessments are increasingly required to counsel parents and to optimize quality of life outcomes in children. [58] The PedsQL has been recommended for the wide age range it covers. [58-60] It has also been shown, in a number of studies internationally, to discriminate between healthy children and those with a wide range of health conditions, including asthma, cancer, and diabetes. Increasingly, health related quality of life (HRQOL) has been proposed as an important health outcome measure, not only for clinical trials, but also for critical care clinical practice improvement strategies and healthcare service evaluation. [57]

AGE DISTRIBUTION

In the current study maximum number of children were in the age group of more than 10 years; n=19 (38%) followed by age group of 5-10 years n=18 (36%). Mean age group in our study was 9.10± 4.574.

Mean age group in a study done by Knoester et al [1] was 5.8 years with a range of 1 to 14.9. Watson et al [45] conducted a study in which maximum children (489) were in age group of 2 weeks to 2 years, while the second largest groups 287 were in the age group of 6 to 18 years.

Jayashree et al [23] reported in their study done at PGI Chandigarh that mean age group of children admitted in PICU was 5.68 ± 3.6 years.

Statistically significant difference was found only in the social domain in terms of comparison with age. However other comparable studies have not observed or mentioned impact of HRQL scores in relation to age distribution.

GENDER DISTRIBUTION

Out of the 50 patients included in the study, there were 10 (20%) females and 40 (80%) males. Male to female ratio was 4:1.Conlon et al conducted a study in which one hundred six (55%) of the long stay PICU patients were male and 87 (45%) were female. [58] Colville et al [36] found in their patient characteristics that 55 (57%) of the children included in their study were males and rest were females.

LAB INVESTIGATIONS AND THEIR EFFECT ON HRQOL

In our study, in the initial proforma, lab investigations like hemogram, renal function tests, liver function tests etc had been recorded at admission. But they were not finally included in the results as lab investigations do not have much bearing on the long term quality of life of children after their hospital discharge.

DURATION OF ICU STAY AND ITS EFFECT ON QUALITY OF LIFE

In our study, most of the children had a ICU stay was 5 -10 years (about 48%), followed by <5 days (32%). We defined prolonged ICU stay as a stay of more than 10 days.

Very few children had a prolonged PICU stay (20%). Jayashree et al [23] reported the mean duration of ICU stay as 5.7 ± 5.5 days, which was almost similar to our study. Colville et al [36] reported the range of duration of ICU stay between 0 to 38 with a mean of 2.

According to a study done by Conlon et al [58], the median length of stay was 43 days (IQR 34 –73 days). Also it was found that, although very long-stay PICU admission is associated with significant mortality, but majority of surviving children have good long-term HRQOL. It was noted in our study that there was a strong relation between emotional domain and HRQOL (p value-0.046). As the length of PICU stay increases, the mean score in each domain decreases, particularly the emotional score. Matsumoto et al [59] performed a retrospective observational study which shows the proportion of favourable functional outcomes, unfavourable functional outcomes, and deaths according to the duration of the PICU stay. Although not statistically significant, increases in the mortality and unfavourable outcome rates 3 years after PICU discharge paralleled increases in the duration of the stay (both p values=0.07). Patients with extremely prolonged stays (≥28 days) had a lower favourable outcome rate than did those with shorter stays (p=0.03), but a similar mortality rate (p=0.16).

SOCIODEMOGRAPHIC PROFILE

In our study, most of the children belonged to the upper middle class (46%), while the second largest group belonged to the lower middle class (36%). We took the Kuppuswamy scale 2018 into consideration for the socioeconomic status of the children. Few studies on this topic have been done in the Indian subcontinent. Maheshwari et al [62] mainly

divided the socioeconomic status on the basis of the residence into urban and rural respectively. Patients from rural area were 243 (70.4%) and 102 (29.5%) from urban area.

Tilford et al sought to describe health outcomes of children following traumatic brain injury. These children usually have a prolonged PICU stay, and it was observed that both parents and children had a similar perception of their ICU stay. [61]

PRISM SCORE AND EFFECT ON QUALITY OF LIFE

The Pediatric Risk of Mortality score is inversely proportional to the risk of morbidity and mortality of the child.25 children had a PRISM between 10-19, which accounts for about 50 % of the total. 18 children (36%) had a PRISM score of 1-9, and 7 children (14%) had a PRISM score of 20-29 and hence had a bad outcome. As per study done by Jayashree et al [23], majority of the children who died were in the moderate to high risk mortality group as per the PRISM scoring.

Khilnani et al studied that children with PRISM III scores in the range of 25 to 30 were associated with a mortality of 25 percent. Those children with PRISM III greater than 35 had mortality greater than 40 percent.[63]

Branda Polic et al [65] et al found that higher values of PIM 2 are significantly correlated with the worsening of QOL 6 months after discharge. However, the long-term QOL as assessed 24 months after discharge was not significantly influenced by PIM 2. This improvement shows the decline of long-term impact of acute illness on QOL. In addition, QOL was significantly diminished 6 months after discharge compared to preadmission values. The Spearmann correlates in our study also showed that higher the PRISM score at admission, lower was the quality of life at 2 weeks and 3 months of follow up. This ultimately reflects that the PRISM score at admission is reflective of the morbidity status of the child and eventually could be useful as a baseline score for comparison between long term health outcomes.

VENTILATORY SUPPORT AND EFFECT ON QUALITY OF LIFE

Only 15 children (30%) of the total number of enrolled children required ventilatory support. Most of the children required invasive ventilation for less than 7 days (46.7%). 7 children (46.7%) required ventilatory support for 7-14 days. Only 1 child required prolonged ventilation for more than 14 days. Ventilatory support and its duration seems to have an inverse relationship with the health related quality of life. Watson and Asaro et al [45] sought to identify factors associated with worse post discharge function and health-related quality of life (HRQL) after pediatric acute respiratory failure in the RESTORE (Randomized Evaluation of Sedation Titration for Respiratory Failure) trial. Of features of the presenting acute illness, decline in functional status was more common with greater illness severity or an admission diagnosis of sepsis associated respiratory failure and less common in those admitted for bronchiolitis or asthma. In univariate analyses of hospital course variables, decline in functional status was significantly associated with moderate or severe pediatric ARDS, 7 or more days of mechanical ventilation, 14 or more days of PICU and hospital stay, and many aspects of pain and sedation management, including receipt of specific types and amounts of medication and inadequate pain or sedation management.

It was found that the mean scores in the physical and emotional category were lower in children who were on ventilatory support. However, the results in the social and psychosocial category at 2 weeks and 3 months were not statistically significant in the child as well as parent report.

But in our study, it was found that there was no significant difference between scores in various domains (children reported) and number of days of ventilator support.

DISTRIBUTION OF PATIENTS ACCORDING TO ORGAN SYSTEM INVOLVED.

Out of all organ systems, the maximum numbers were in the miscellaneous section-10, which comprised 20 percent of total. The miscellaneous system consisted of children with Multisystem Inflammatory Syndrome in Children (earlier called Pediatric Inflammatory Multisystem Syndrome), poisonings, drowning, etc. The second major group for admissions were infectious disease (out of which the maximum cases were of dengue) and neurological (18% each), followed by gastrointestinal (12%).Trauma cases comprised of 10 % of the total.

In a study, conducted by Praveen Khilnani et al [63] with 948 children admitted to PICU, diagnosis included respiratory (19.7%), cardiac (9.7%), neurological (17.9%), infectious (12.5%), trauma (11.7%), other surgical (8.8%) and 49.5% of non survivors had multi-organ failure.

In a study conducted by Conlon et al [58], the system wise distribution was cardiovascular (34%), respiratory (29 %), gastrointestinal (23%) ,neurological (4%), ears, nose, and throat (3%), hematological (2%) ,genitourinary (1%), musculoskeletal (1%), trauma (1%), metabolic (0.5%) and miscellaneous (1.5 %).

COMPARISON OF HRQOL AT 2 WEEKS AND 3 MONTHS (AS PER CHILDREN)

In our study, it was found that the mean physical score at 2 weeks was 59.11±25.35 and at 3 months was 67.50±22.56.

Mean psychosocial score at 2 weeks was 75.42±22.52 and at 3 months was 81.48 ± 19.07.

The p value was significant (0.001); hence proving that children had a better perception of quality of life at 3 months as compared to 2 weeks post follow up.

Colville and Pierce [13] investigated children's self reported quality of life. Ninety-seven children over the age of 7 were followed up at 3 mo and 1 year after PICU discharge with the Pediatric Quality of Life Inventory (physical, emotional, social and school functioning) among other surveys. Children with significant learning difficulties were excluded. At three months after discharge, the Pediatric Quality of Life Inventory scores were lower in the PICU group compared to a non-clinical community group. One year after discharge, the scores were comparable. The physical functioning subscale scores were lower in the PICU group but improved over time.

Taylor et al [64] evaluated long-term quality of life and functional outcome after pediatric critical illness in children 0 to 29 years of age. The patients were followed up at a median of 3.5 years after PICU discharge. The Glasgow Outcome Score was used to assess functional outcome while the Health State Utility Index (Mark 1) was used to assess quality of life. Of the 1032 children admitted to the PICU in 1995, 868 patients had follow-up data. Only 10% of survivors had an unfavorable outcome likely to lead to dependency on other's care. The majority of children (84%) also had a favorable quality of life, however, 29% of children survived with disabilities.

Rennick et al [37] conducted a study in which they found that children with a younger age, greater illness severity, and those subjected to a greater number of invasive procedures had ongoing posttraumatic symptoms, lower sense of control over health, and more medical fears six weeks after hospital discharge. At six months after discharge, only the children who were exposed to higher numbers of invasive procedures had significantly more medical fears and symptoms of posttraumatic stress.

Significant gains in physical functioning were reported, between 3 months and 1 yr by Colville et al [36] for the children as a whole, but the subgroup analyses suggested that these gains were more marked for

the elective and the TBI subgroups than for the other emergency admissions. These findings demonstrate that it is important to be aware of the heterogeneity of experience and the very different contexts which apply to children in the PICU, when examining data on their long-term quality of life outcomes.

Major deterioration both in overall and domain specific health status was observed in 29 (25%) patients. It is interesting to note that the group which deteriorated belonged to the neurological illnesses, which left behind sequelae. Emotional domain was the most commonly affected followed by cognition, self care, pain, mobility and sensation. The affection of cognition, mobility and self care as a part of neurological sequelae is well accepted. The emotional attribute needs to be looked into more carefully as studied by Jayashree et al. [23]

Even in our study, the mean scores in the children who did not have to undergo central or arterial line insertion were much better (p value-significant) than those who had to undergo these invasive procedures during their ICU stay.

COMPARISON OF HRQOL AT 2 WEEKS AND 3 MONTHS (PARENT REPORTED)

The physical and psychosocial scores at 2 weeks and 3 months as reported by children showed similarity with the parents report.

The mean physical score at 2 weeks was 54.29±23.3 and at 3 months was 61±21.71.

Psychosocial scores at 2 weeks was 71.50±22 and at 3 months was 76.43±21.88. P value came out to be significant in the above cases.

Jennick et al [2] did a study titled “Caring Intensively”, which sought to study family member’s perception about their child’s ICU stay. The child’s critical illness challenged parents’ preexisting perceptions of “normal” childhood health and illness and revised the notion that childhood illness is temporary and minor. Some parents initially had

difficulty understanding that their child was critically ill, and ultimately redefined their conceptualizations of illness and health following their experience of critical illness and PICU hospitalization. Parents and siblings perceived the child as more vulnerable, as did some of the child survivors themselves. Participants described significant emotional and behavioral changes during the year following discharge. Rennick et al [37] observed that PICU memories and reminders impacted participants' perceptions of childhood health and illness and resulted in increased vigilance. Parents and siblings demonstrated increased concern for the child survivor's health, and the experience of long absences and new or altered care giving roles resulted in changes in relationships and family dynamics.

Polic et al [65] conducted follow ups at 6 months and 1 year after discharge from the PICU. The functional disability score at 6 months was found to be 37% and at 24 months was 31%. Risk factors for acquired functional impairment were studied and it was found that a higher PIM-2 score at admission and history of pre existing neurological disability were found to have a worse quality of life at follow up.

FACTORS AFFECTING THE HEALTH RELATED QUALITY OF LIFE AT FOLLOW UP

Our study aimed to study the factors during PICU stay which affect the Health Related Quality of Life of children on follow up. It was seen that some factors like PRISM at admission, duration of PICU stay, GCS at admission had a positive correlation with health related quality of life.

In our study, in the child reporting, the mean scores were lowest in the physical domain (59.11) and highest in the social domain (81.75).This was in concordance with the parent's reporting-physical domain (54.29) and social domain (77.83).

Killien and Rivara [12] sought to evaluate which individual elements of health-related quality of life contribute most to decline in overall health-related quality of life status following pediatric critical care in a retrospective cohort study. Despite relatively low illness severity and short ICU LOS, nearly one-quarter of patients experienced a clinically important decline in HRQL from their preadmission baseline to post discharge follow-up with a median decline nearly four times the minimal clinically important difference. Among patients with overall HRQL decline, young children most commonly experienced deterioration in emotional functioning, whereas older children and teens were most commonly affected by declines in physical functioning. Across all patients, declines were most common in energy and physical activity. patients with medical ailments as well as surgical conditions experienced high prevalence of physical impairment after discharge.

Conlon et al [58] observed that patients with chromosomal disorders had significantly worse total scores (p=0.005) and physical, psychosocial, social, and school subscores at follow-up compared with the overall PICU study population. Their emotional subscores were not significantly different. Gender, presence of extreme prematurity or congenital heart disease, or number of organs supported showed no association with HRQOL at follow-up in any of the subscore categories.

Ambuhel et al [46] found out that almost half the children admitted to the PICU had a preexisting chronic disease related to the reason for PICU admission.

Watson and Asaro [45] in their study found out that worse outcomes were strongly associated with socio-demographic factors and preexisting health status, features of the presenting acute illness, and aspects of the hospital course, particularly duration of mechanical ventilation, inadequate pain and sedation management, and receipt of medications used to facilitate weaning from prolonged use of sedatives and analgesics. In these analyses, the magnitude of effects related to

the course of critical illness was comparable to having a severe underlying disease, such as cancer. These results could inform the development of a clinical stratification tool that could be used to guide post discharge care.

In our study, the presence of ventilatory support led to a poor quality of life, but the duration of ventilation did not have an impact on HRQoL on follow up.

SUMMARY AND CONCLUSIONS

The study was a prospective study meant to assess the HrQoL outcomes in children on follow up after discharge from the Pediatric ICU. The follow up was done in the PICU follow up clinic in the department of Pediatrics, DMCH Ludhiana.

50 patients who met the inclusion criteria were studied.

- Age distribution revealed that maximum number of children admitted in our ICU were in the age group of more than 10 years.
- The male to female ratio of children admitted to the PICU was 4:1(Male preponderance).
- Out of the total number of children enrolled, 38 had a normal nutritional status, 9 were underweight and 3 were overweight. The nutritional status did not seem to have an effect on the long term quality of life.
- Infectious diseases and neurological cases comprised of the maximum portion of admissions to our PICU (18% each). In the miscellaneous group, MIS-C consisted of the majority patients (80%).
- Most of the children had a stay of around 5-10 days (48%). Prolonged stay was less in our ICU.
- 25 children had a PRISM between 10-19, which accounts for about 50 % of the total. PRISM is an important measure of severity of illness and serves as a baseline score for long term prognostication too.
- The PRISM score seemed to affect the physical quality of life in the long term(p value <0.001)
- During PICU stay, 15 children i.e. 30 percent of the total required invasive ventilation. It was found that children on ventilator support while in ICU had poor emotional (P value

0.007) and physical scores (P value-0.009) as compared to children on other modes of oxygen support. Similar results were found in the Parent's report of quality of life (p value for physical score-0.001 and for emotional score-0.019).

- However, it was found that in contrast to some studies done on this topic before, the duration of ventilation did not affect the quality of life on follow up in our patients. But the presences of ventilatory support during admission lead to a bad quality of life at follow up, particularly the emotional and physical domain.
- PICU stay was an important element in affecting the various domains of QoL. The emotional domain was most affected by the length of PICU stay (p value-0.046); mean scores in all other domains decreased as PICU stay increased.
- Parent reporting of their children with regards to PICU stay was similar. The results were statistically significant in all domains of QoL.
- While correlating the GCS at admission and child reported HRQOL, the physical score at 2 weeks post PICU discharge showed a directly proportional relationship with GCS. A better GCS meant better quality of life in almost all domains-except social scores (p value not significant). The p value in the psychosocial health summary score was also insignificant (p value 0.166). Similar trends were found at 3 months post discharge(P value in physical domain-0.032 and P value in psychosocial domain-0.068)
- Similar results were found in the Parent Reported QOL too. It was found that higher the GCS at admission better was the health related quality of life as reported by parents. The relation was statistically significant in all domains.
- While drawing a comparison between Children and Parent Reported Quality of Life-the mean scores were higher at 3 months of life as compared to 2 weeks. The physical domain

was more affected on follow up than the psychosocial domain, and observation was same as per reporting of children as well as their parents.

- In children with a longer duration of inotropic support, the mean scores were lower, but the p value was not significant in this case.
- An important factor-nutritional status at admission did not seem to have an effect of long term quality of life. Probably, it affects only the recovery of patients while in the ICU.

LIMITATIONS

A number of limitations were found in the study.

1. Lack of premorbid HRQOL data- The relative contributions of preexisting medical conditions to the HRQOL outcome at follow-up can only be speculated upon. Baseline HRQOL data, if available, would have assisted in elucidating its overall relative importance.
2. High attrition rate-a large number of children in our study could not be followed up as majority parents did not turn up in the OPD with their children due to the COVID 19 pandemic.
3. Some follow ups were completed telephonically at 3 months post discharge.
4. The school domain of our questionnaire could not be computed as schools were largely shut down due to the COVID 19 wave.

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(a) Occupation of the Head of the Family: -

Sr. No.	Occupation of the Head	Score
1	Legislators, Senior Officials & Managers	10
2	Professionals	9
3	Technicians and Associate Professionals	8
4	Clerks	7
5	Skilled Workers and Shop & Market Sales Workers	6
6	Skilled Agricultural & Fishery Workers	5
7	Craft & Related Trade Workers	4
8	Plant & Machine Operators and Assemblers	3
9	Elementary Occupation	2
10	Unemployed	1

(b)Education of the Head of the Family: -

Sr. No.	Education of the Head	Score
1	Profession or Honours	7
2	Graduate	6
3	Intermediate or diploma	5
4	High school certificate	4
5	Middle school certificate	3
6	Primary school certificate	2
7	Illiterate	1

(c)Total Monthly Income of the Family: -

Sr. No.	Updated Monthly Family Income in Rs. (2012)	Updated Monthly Family Income in Rs. (2016)	Updated Monthly Family Income in Rs. (2018)	Score
1	>30375	≥ 40,430	>126,360	12
2	15188-30374	20,210–40,429	63,182-126,356	10
3	11362-15187	15,160–20,209	47,266-63178	6
4	7594-11361	10,110–15,159	31,591-47262	4
5	4556-7593	6060–10,109	18,953-31589	3
6	1521-4555	2021–6059	6327-18949	2
7	≤1520	≤ 2020	≤6323	1

(d)Kuppuswamy's Socio-Economic Status Scale 2018: -

Sr. No.	Score	Socioeconomic Class
1	26–29	Upper (I)
2	16–25	Upper Middle (II)
3	11–15	Lower Middle (III)
4	5–10	Upper Lower (IV)
5	< 5	Lower (V)

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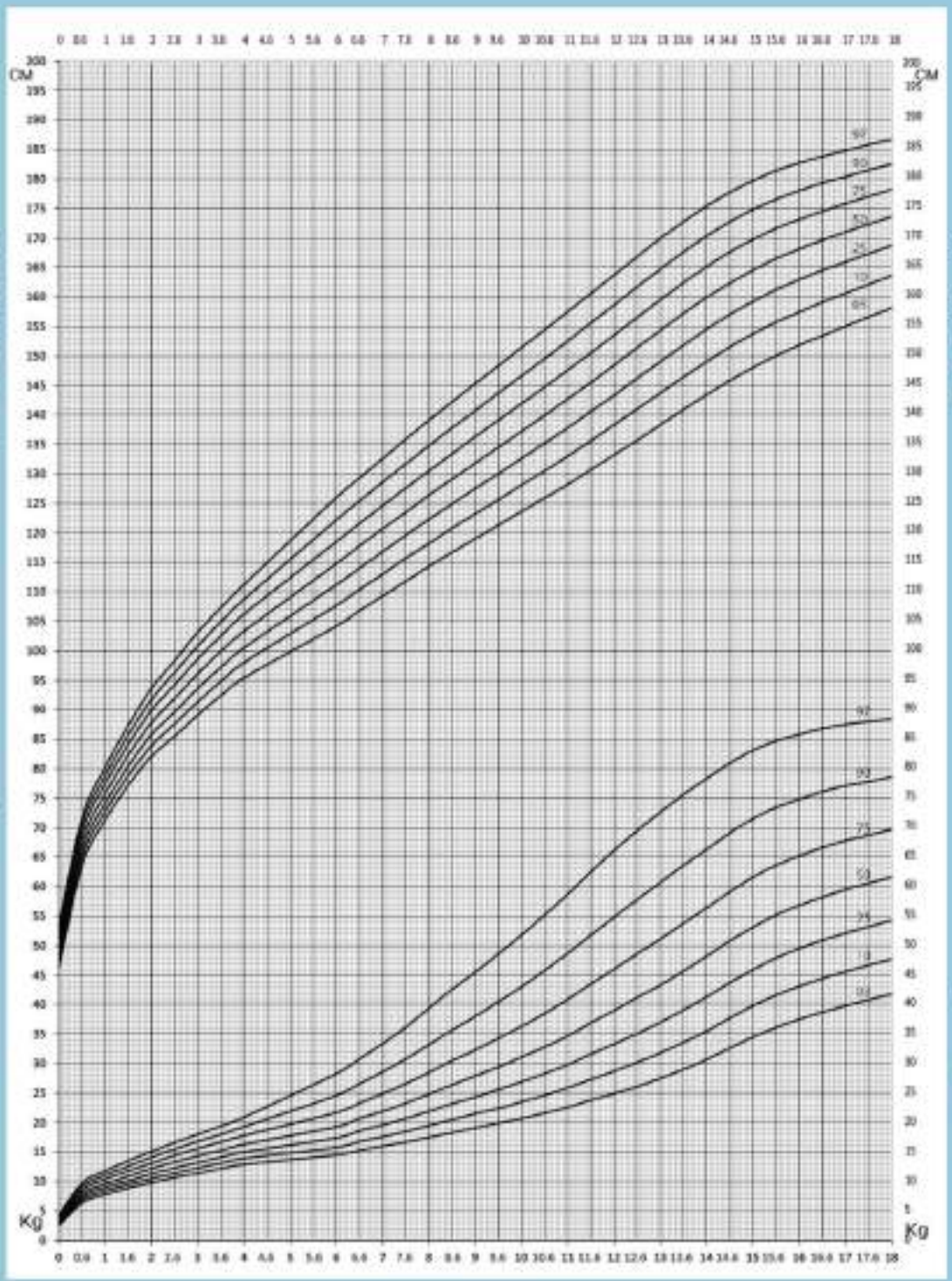
1. Rahudkar WB. A scale for measuring socio-economic status of Indian farm families,

0 to 18 Years: Boys

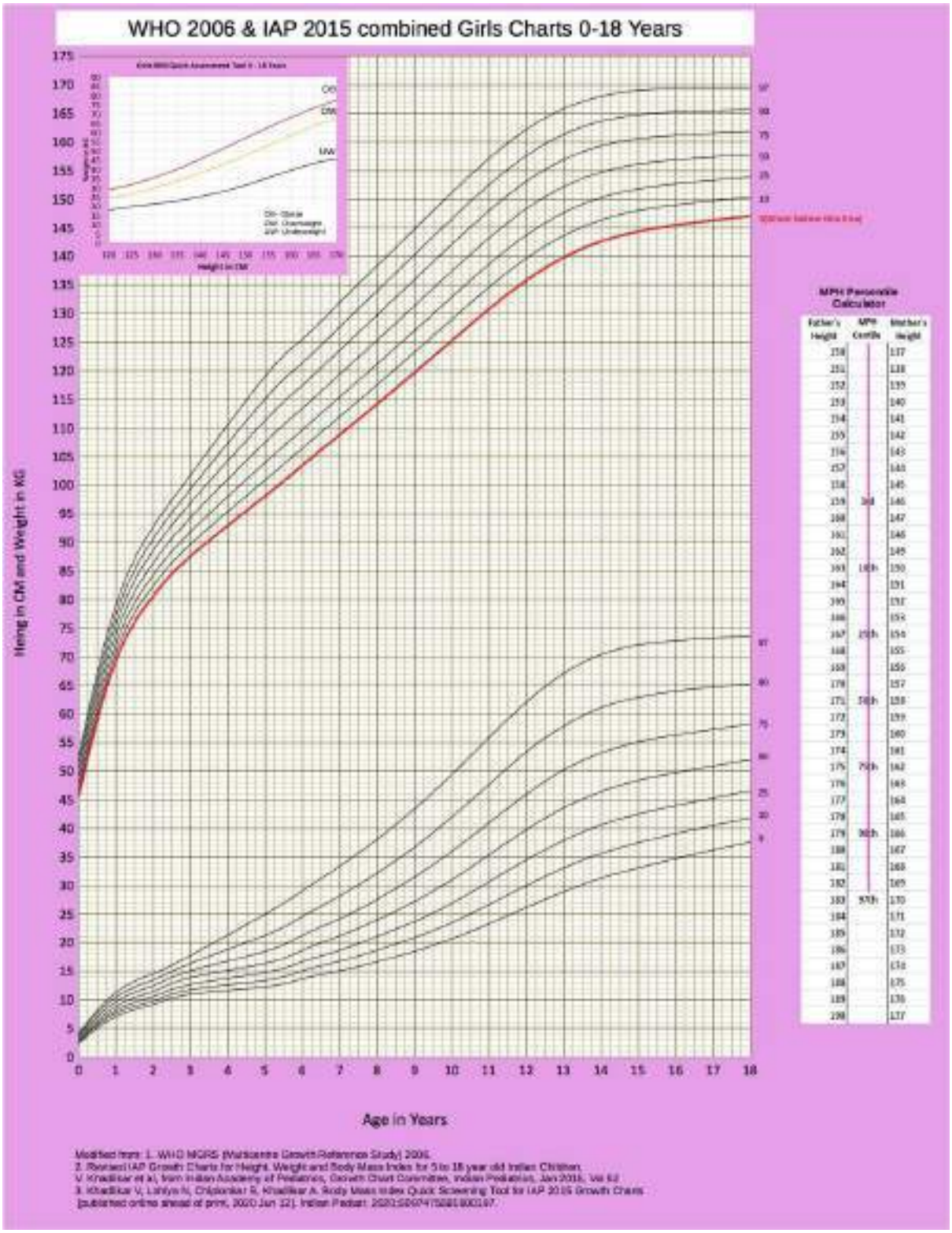
WHO 2006 & IAP 2015 Combined Height & Weight Charts

NAME _____

DOB _____



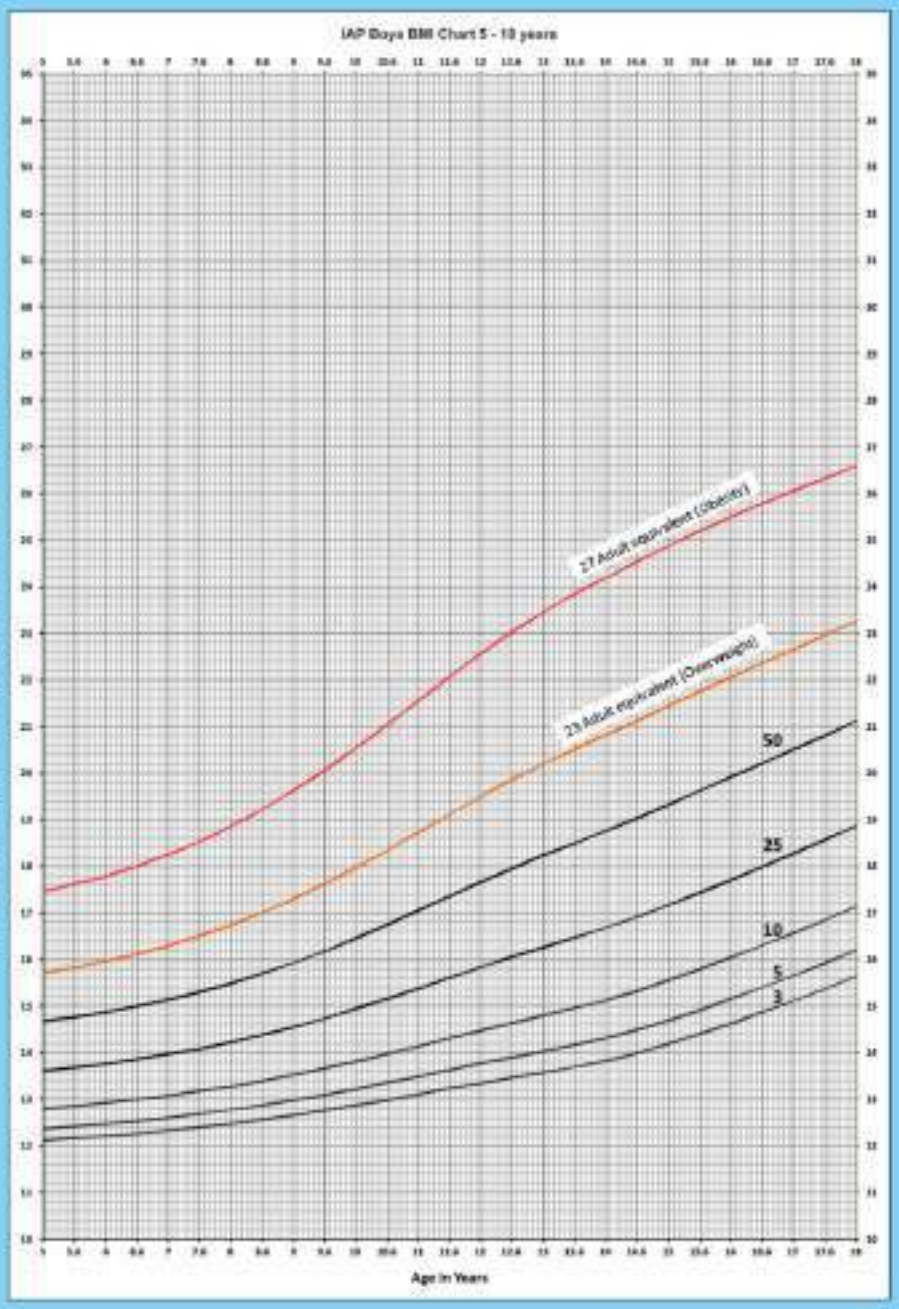
1. WHO 2006 MGRS Charts
2. Revised IAP Growth Charts for Height, Weight and Body Mass Index for 5 to 18 year old Indian Children
V.Khadilkar et al; from Indian Academy of Pediatrics. Growth Chart Committee. Indian Pediatrics. Jan. 2015, Volume 52


WHO 2006 & IAP 2015 combined Girls Charts 0-18 Years
Height in CM and Weight in KG
Age in Years
MPH Percentile Calculator
Father's Height
MPH Centile
Mother's Height
Modified from: 1. WHO MGRS (Multicentre Growth Reference Study) 2006.
2. Revised IAP Growth Charts for Height, Weight and Body Mass Index for 5 to 18 year old Indian Children.
V Khadilkar et al, Ind Indian Academy of Pediatrics, Growth Chart Committee, Indian Pediatrics, Jan 2015; Vol 52
3. Khadilkar V, Lahiya N, Chiplonkar S, Khadilkar A. Body Mass Index Quick Screening Tool for IAP 2015 Growth Charts
[published online ahead of print, 2020 Jun 12]. Indian Pediatr. 2020;S0974755201800197.

5 to 18 Years : IAP Boys Body Mass Index Charts

Name _____

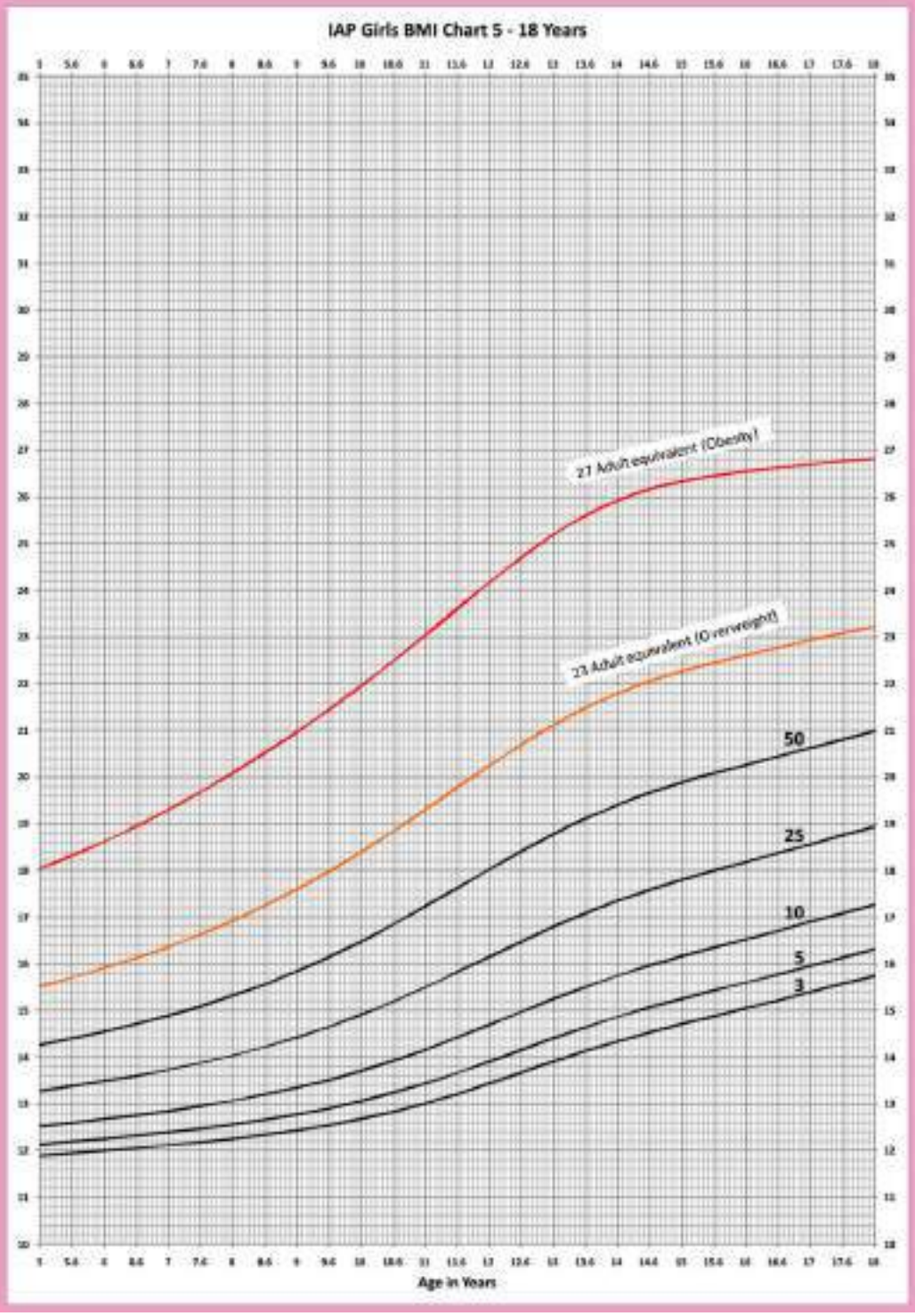
DOB _____



5 to 18 Years : IAP Girls Body Mass Index Charts

Name _____

DOB _____



Revised IAP growth charts for height, weight & body mass index for 5 to 18 year old Indian children
V. Khadilkar et al. / Indian Academy of Pediatrics Growth Chart Committee Indian Pediatrics Jan 2015, volume 52

SERIAL NO	MRD NO	AGE (YRS)	SEX(M/F)	ADMISSION NUMBER	DATE OF ADMISSION	DATE OF DISCHARGE	DIAGNOSIS	Dengue	MIS-C	PRIMARY SYSTEM INVOLVED	PRISM SCORE	PRISM SCORE gp
1	953803	6	M	2020039257	12-08-2020	21-08-2020	SURGICAL	N	N	GASTROINTESTINAL	13	2
2	853261	2	M	2019083178	20-11-2019	15-12-2019	NEUROSURGICAL	N	N	NEUROSURGERY	4	1
3	947507	10	M	2020036935	27-07-2020	24-08-2020	ENVENOMATION	N	N	MISCELLANEOUS	14	2
4	889965	15	M	2020021346	01-02-2020	06-02-2020	COMPLICATED ENTERIC FEVER	N	N	GASTROINTESTINAL	3	1
5	875961	3	M	2020000660	04-01-2020	13-02-2020	RENAL AND CNS	N	N	RENAL,NEUROLOGICAL	9	1
6	865660	13	F	2020002547	11-01-2020	04-02-2020	SEVERE DENGUE WITH SHOCK WITH ARDS	Y	N	DENGUE	25	3
7	974513	12	M	2020048342	10-10-2020	03-11-2020	MIS-C WITH R.F. WITH CARDIOGENIC SHOCK	N	Y	CARDIOVASCULAR	3	1
8	901517	8	M	2020012143	18-02-2020	02-03-2020	LEFT LOBAR PNEUMONIA WITH PLEURAL EFFUSION	N	N	RESPIRATORY	4	1
9	919718	7	F	2020020235	21-03-2020	02-04-2020	ADEM WITH RESPIRATORY FAILURE	N	N	NEUROLOGICAL	23	3
10	956030	10	M	2020040069	17-08-2020	31-08-2021	MIS-C	N	Y	MISCELLANEOUS	8	1
11	975477	13	F	2020048873	13-10-2020	27-10-2020	SEVERE DENGUE	Y	N	DENGUE	12	2
12	966556	12	M	2020044496	17-09-2020	21-09-2020	SEVERE DENGUE WITH MIS-C	Y	Y	DENGUE	11	2
13	905144	3.5	F	2020013708	24-02-2020	18-03-2020	K/C/O/WEST SYNDROME WITH RESPIRATORY FAILURE	N	N	NEUROLOGICAL	22	3
14	964245	2	F	2020043878	13-09-2020	23-09-2020	MIS-C	N	Y	MISCELLANEOUS	9	1
15	904316	10	M	2020056879	26-11-2020	29-11-2020	SEVERE ANAEMIA	N	N	HEMATOLOGICAL	2	1
16	988804	16	M	2020055490	19-11-2020	27-11-2020	TUBERCULOMA WITH FAILURE TO THRIVE	N	N	NEUROLOGICAL	7	1
17	927187	5	F	2020026539	18-05-2020	29-05-2020	RSA WITH LEFT HAEMOTHORAX	N	N	TRAUMA	10	2
18	927186	9	M	2020026538	18-05-2020	29-05-2020	TRAUMATIC BRAIN INJURY	N	N	TRAUMA	15	2
19	969233	8	M	2020045804	24-09-2020	30-09-2020	SEVERE DENGUE WITH SHOCK WITH RESP.DISTRESS	Y	N	DENGUE	13	2
20	934048	13	M	2020030262	12-06-2020	22-06-2020	TBI WITH MENINGITIS WITH VENTRICULITIS	N	N	NEUROLOGICAL	19	2
21	994286	6	M	2020057741	01-12-2020	15-12-2020	OPC POISONING	N	N	MISCELLANEOUS	11	2
22	994283	7	F	2020057742	01-12-2020	09-12-2020	OPC POISONING	N	N	MISCELLANEOUS	16	2
23	983720	5	M	2020053096	05-11-2020	12-11-2020	TRAUMATIC BRAIN INJURY	N	N	TRAUMA	8	1
24	1006404	10	M	2020062533	29-12-2020	08-01-2021	MIS-C WITH R.F. WITH CARDIOGENIC SHOCK	N	Y	MISCELLANEOUS	12	2
25	1011494	11	M	2021001839	11-01-2021	30-01-2021	RHEUMATIC CARDITIS WITH CARDIOGENIC SHOCK	N	N	CARDIOVASCULAR	19	2
26	1020933	11	M	2021005644	01-02-2021	08-02-2021	LANDRY GULLAIN BARRE SYNDROME	N	N	NEUROLOGICAL	5	1
27	1043999	15	M	2021012396	07-03-2021	21-03-2021	K/C/O/ EPILEPSY WITH DRESS	N	N	NEUROLOGICAL	6	1
28	1127742	15	M	2021031345	26-04-2021	10-05-2021	MRSA SEPSIS WITH POLYSEROSITIS	N	N	INFECTIOUS	11	2
29	1049614	3	M	2021013471	12-03-2021	23-03-2021	ACUTE VIRAL HEPATITIS WITH ACUTE LIVER FAILURE	N	N	GASTROINTESTINAL	2	1
30	1066199	17	M	2021016459	27-03-2021	06-04-2021	MIS-C WITH HYPOTENSIVE SHOCK	N	Y	MISCELLANEOUS	6	1
31	1029351	16	F	2021008628	17-02-2021	25-02-2021	ABDOMINAL TUBERCULOSIS	N	N	GASTROINTESTINAL	5	1
32	922794	6	F	2020023158	17-04-2020	24-04-2020	ACUTE VIRAL HEPATITIS	N	N	GASTROINTESTINAL	3	1
33	1062726	9	F	2021015729	24-03-2021	03-04-2021	MISC WITH MYOCARDITIS WITH AKI	N	Y	MISCELLANEOUS	14	2
34	1089470	8	M	2021020801	18-04-2021	30-04-2021	MODERATE TBI WITH DECOMPRESSIVE CRANIECTOMY	N	N	TRAUMA	19	2
35	1113286	2	M	2021025911	25-05-2021	03-06-2021	MISC WITH IRON DEFICIENCY ANAEMIA	N	Y	MISCELLANEOUS	12	2
36	1133716	15	M	2021026097	27-05-2021	31-05-2021	WET DROWNING	N	N	MISCELLANEOUS	7	1
37	1137717	2.5	M	2021035244	16-04-2021	22-04-2021	CENTRAL NERVOUS SYSTEM	N	N	NEUROLOGICAL	25	3
38	940008	4	M	2020033431	03-07-2020	11-07-2020	SEVERE DENGUE WITH SHOCK WITH RESP.DISTRESS	Y	N	DENGUE	14	2
39	966692	9	M	2020044549	17-09-2020	24-09-2020	SEVERE DENGUE WITH SHOCK WITH RESP.DISTRESS	Y	N	DENGUE	16	2
40	875827	3	M	2020000568	03-01-2020	14-01-2020	LEPTOMENINGITIS WITH SHOCK	N	N	NEUROLOGICAL	12	2
41	919270	2	M	2020019969	19-03-2020	08-05-2020	SCALD BURNS WITH SEPTIC SHOCK	N	N	PLASTIC SURGERY	28	3
42	938271	15	M	2020032532	27-06-2020	03-07-2020	NEW ONSET DM WITH SEVERE KETOACIDOSIS	N	N	ENDOCRINE	11	2
43	1128996	13	M	2021038128	28-06-2021	22-07-2021	DISSEMINATED STAPH SEPSIS WITH SEPTIC SHOCK	N	N	INFECTIOUS	8	1
44	1089894	13	M	2021020277	15-04-2021	23-04-2021	NEW ONSET TYPE 1 DM WITH DKA WITH RESP.FAILURE	N	N	ENDOCRINE	18	2
45	1120600	4	M	2021028440	10-06-2021	21-06-2021	DILATED CARDIOMYOPATHY WITH RBBB	N	N	CARDIOVASCULAR	20	3
46	904316	10	M	2020050856	24-10-2020	02-11-2020	VUR GRADE 4 WITH STATUS EPILEPTICUS	N	N	RENAL,NEUROLOGICAL	18	2
47	952856	16	M	2021000212	02-01-2021	19-01-2021	TTP WITH RELAPSE WITH DYSELECTROLYTEMIA	N	N	HEMATOLOGICAL	26	3
48	1007987	14	M	2021000400	04-01-2021	13-01-2021	ACUTE CEREBELLAR INFARCT WITH CSVT	N	N	NEUROLOGICAL	15	2
49	1087766	8	M	2021020481	17-04-2021	23-04-2021	TROPICAL FEVER WITH MULTIORGAN DYSFUNCTION	N	N	GASTROINTESTINAL	12	2
50	966130	8	M	2020044307	15-09-2020	21-09-2020	SEVERE DENGUE WITH SHOCK	Y	N	DENGUE	12	2

SERIAL NO	MRD NO	SYMPTOMS AT ADMISSION	NO. OF READMISSIONS TO PICU	PICU STAY	PICU STAY gp	NUTRITIONAL STATUS AT ADMISSION	OXYGEN DELIVERY DEVICE USED	INVASIVE VENTILATION (Y/N)	PIP	PEEP	FI02	INVASIVE VENTILATION NO OF DAYS	ventilation days
1	953803	PAIN ABDOMEN,FEVER,VOMIT	NONE	4	1	MALNOURISHED	SIMPLE FACEMASK	N	-	-	-	-	-
2	853261	ALTERED SENSORIUM	NONE	11	3	NORMAL	NON REBREATHING MASK	N	-	-	-	-	-
3	947507	GENERALISED SWELLING	NONE	20	3	NORMAL	NO	N	-	-	-	-	-
4	889965	FEVER,LOOSE STOOLS,ALTERED SENSORIUM	NONE	5	1	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
5	875961	LOOSE STOOLS,FEVER	NONE	30	3	MALNOURISHED	SIMPLE FACEMASK	Y	20	5.5	50	12	2
6	865660	FEVER,VOMITING	ONE	10	2	NORMAL	NO	Y	21	6.5	60	6	1
7	974513	FEVER,VOMITING	NONE	16	3	MALNOURISHED	NON REBREATHING MASK	Y	23	7	100	10	2
8	901517	COUGH,FEVER	NONE	7	2	NORMAL	NASAL PRONGS	N	-	-	-	-	-
9	919718	NONE	NONE	13	3	NORMAL	NO	Y	20	5.5	40	7	2
10	956030	FEVER AND DIFFICULTY IN BREATHING	NONE	15	3	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
11	975477	FEVER,HEMATEMESIS	NONE	4	1	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
12	966556	FEVER,PAIN ABDOMEN	NONE	5	1	MALNOURISHED	SIMPLE FACEMASK	N	-	-	-	-	-
13	905144	FEVER AND COUGH	NONE	24	3	NORMAL	NO	Y	20	5.5	100	16	2
14	964245	FEVER,VOMITING	NONE	7	2	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
15	904316	CHEST PAIN,DIFFICULTY IN BREATHING	NONE	4	1	MALNOURISHED	SIMPLE FACEMASK	N	-	-	-	-	-
16	988804	HEADACHE AND VOMITING	NONE	5	1	MALNOURISHED	SIMPLE FACEMASK	N	-	-	-	-	-
17	927187	TRAUMA,RESPIRATORY DISTRESS	NONE	5	1	NORMAL	NASAL PRONGS	N	-	-	-	-	-
18	927186	RESPIRATORY FAILURE	NONE	8	2	NORMAL	NO	Y	21	6.5	40	7	2
19	969233	FEVER AND VOMITING	NONE	6	2	NORMAL	NASAL PRONGS	N	-	-	-	-	-
20	934048	RSA WITH FEVER AND VOMITING	NONE	8	2	NORMAL	NO	N	-	-	-	-	-
21	994286	A/H/O OPC POISONING	NONE	8	2	NORMAL	SIMPLE FACEMASK	Y	22	6.5	50	6	1
22	994283	A/H/O OPC POISONING	NONE	6	2	NORMAL	SIMPLE FACEMASK	Y	21	6.5	50	3	1
23	983720	LEAK OF CSF FROM NOSE AND EARS	NONE	6	2	NORMAL	FACEMASK	N	-	-	-	-	-
24	1006404	FEVER,VOMITING,LOOSE STOOLS	NONE	8	2	NORMAL	SIMPLE FACEMASK	Y	20	6.5	60	7	2
25	1011494	COUGH,FEVER,DIFFICULTY BREATHING	NONE	10	2	NORMAL	NO	Y	23	7.5	35	8	2
26	1020933	PROGRESSIVE WEAKNESS IN BODY	NONE	4	1	NORMAL	NO	N	-	-	-	-	-
27	1043999	FEVER,ITCHING,POOR ORAL INTAKE	NONE	9	2	NORMAL	NASAL PRONGS	N	-	-	-	-	-
28	1127742	FEVER,PAIN IN RIGHT LEG	NONE	15	3	NORMAL	NASAL PRONGS	N	-	-	-	-	-
29	1049614	FEVER,LOOSE STOOLS,JAUNDICE	NONE	7	2	NORMAL	NO	N	-	-	-	-	-
30	1066199	FEVER,LOOSE STOOLS	NONE	5	1	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
31	1029351	FEVER,LOOSE STOOLS,BLEEDING	NONE	4	1	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
32	922794	VOMITING,FEVER,LETHARGY	NONE	5	1	NORMAL	NO	N	-	-	-	-	-
33	1062726	FEVER,RESPIRATORY DISTRESS	NONE	7	2	NORMAL	SIMPLE FACEMASK	Y	22	6.5	80	5	1
34	1089470	TRAUMA	NONE	8	2	NORMAL	NO	Y	23	5.5	40	5	1
35	1113286	FEVER,RASH,LOOSE STOOLS	NONE	6	2	NORMAL	NO	N	-	-	-	-	-
36	1133716	A/H/O/ FALL IN POND	NONE	4	1	NORMAL	NO	N	-	-	-	-	-
37	1137717	VOMITING,IRRITABILITY,SQUINT	NONE	6	2	NORMAL	NO	N	-	-	-	-	-
38	940008	FEVER,VOMITING,POOR ORAL INTAKE	NONE	7	2	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
39	966692	FEVER,VOMITING,PAIN ABDOMEN	NONE	4	1	OVERWEIGHT	SIMPLE FACEMASK	N	-	-	-	-	-
40	875827	FEVER,COUGH,ABNORMAL BODY MOVEMENTS	NONE	8	2	NORMAL	NO	Y	23	5.5	45	6	1
41	919270	A/H/O SCALD BURNS WITH RESPIRATORY DISTRESS	ONE	45	3	MALNOURISHED	NASAL PRONGS	Y	23	6.5	80	13	2
42	938271	INCREASED URINATION,GENERALISED WEAKNESS	NONE	5	1	MALNOURISHED	NO	N	-	-	-	-	-
43	1128996	PAIN,FEVER,SWELLING ON LEFT THIGH AND KNEE	NONE	13	3	NORMAL	NASAL PRONGS	N	-	-	-	-	-
44	1089894	FEVER,GENERALISED WEAKNESS	NONE	7	2	NORMAL	SIMPLE FACEMASK	Y	23	6.5	60	2	1
45	1120600	PAIN ABDOMEN,VOMITING,POOR ORAL INTAKE	NONE	8	2	NORMAL	NO	N	-	-	-	-	-
46	904316	FEVER,VOMITING,ABNORMAL BODY MOVEMENTS	NONE	8	2	MALNOURISHED	HFNC	N	-	-	-	-	-
47	952856	HEMATURIA,POOR ORAL INTAKE	ONE	10	2	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
48	1007987	HEADACHE,VOMITING,FEVER	NONE	7	2	OVERWEIGHT	SIMPLE FACEMASK	N	-	-	-	-	-
49	1087766	FEVER,DIFFICULTY IN BREATHING	NONE	5	1	NORMAL	SIMPLE FACEMASK	N	-	-	-	-	-
50	966130	FEVER,BODYACHES,PAIN ABDOMEN	NONE	5	1	OVERWEIGHT	SIMPLE FACEMASK	N	-	-	-	-	-

SERIAL NO	MRD NO	NON INVASIVE VENTILATION	NON INVASIVE VENTILATION_NO OF DAYS	UNDERLYING CONDITION(SIGNIFICANT)	INOTROPIC SUPPORT	SINGLE/MULTIPLE	MAX. DOSE	NO. OF DAYS	INOTROPES DAYS	CENTRAL LINE(Y/N)	ARTERIAL LINE(Y/N)
1	953803	NO	-	APPENDICULAR PERFORATION	NO	-	-	-	-	Y	N
2	853261	NO	-	SAH,SDH	YES	MULTIPLE	DOPA/NE(10/0.2)	3	1	Y	Y
3	947507	BiPAP	10	COAGULOPATHY WITH AKI	NO	-	-	-	-	Y	Y
4	889965	BiPAP	2	NONE	NO	-	-	-	-	N	Y
5	875961	NO	-	HYPERTENSION	NO	-	-	-	-	Y	Y
6	865660	BiPAP	4	RESPIRATORY FAILURE(ARDS)	YES	MULTIPLE	DOPA/E(8/0.3)	7	2	Y	Y
7	974513	BiPAP	4	RESPIRATORY FAILURE WITH HEPATIC ENCEPHALOPATHY	YES	MULTIPLE	DOPA/NE(10/0.3)	4	1	Y	Y
8	901517	BiPAP	5	NEUTROPENIA	NO	-	-	-	-	N	N
9	919718	BiPAP	2	-	YES	SINGLE	DOPA-8	2	1	Y	Y
10	956030	NO	-	MYOCARDITIS,LV SYSTOLIC DYSFUNCTION	NO	-	-	-	-	Y	Y
11	975477	BiPAP	4	-	YES	SINGLE	DOPA(4)	2	1	N	Y
12	966556	BiPAP	3	RESPIRATORY DISTRESS	YES	SINGLE	EPI(0.5)	2	1	Y	Y
13	905144	NO	-	WEST SYNDROME	YES	MULTIPLE	DOPA/E(10/0.1)	5	1	Y	Y
14	964245	BiPAP	5	-	YES	MULTIPLE	-	3	1	Y	Y
15	904316	NO	-	NONE	YES	SINGLE	DOPA(4)	2	1	N	N
16	988804	NO	-	FAILURE TO THRIVE	NO	-	NA	-	-	N	N
17	927187	NO	-	LEFT MANDIBULAR FRACTURE	YES	SINGLE	DOPAMINE(4)	1	1	Y	Y
18	927186	NO	-	RESPIRATORY FAILURE	YES	MULTIPLE	MULTIPLE	3	1	Y	Y
19	969233	BiPAP	3	SHOCK	YES	SINGLE	DOBUTAM(4)	2	1	Y	N
20	934048	NO	-	MENINGITIS	NO	-	NA	-	-	N	N
21	994286	NO	-	RESPIRATORY FAILURE	NO	-	NA	-	-	N	N
22	994283	NO	-	RESPIRATORY FAILURE	NO	-	NA	-	-	N	N
23	983720	NO	-	CSF RHINORRHOEA	NA	-	NA	-	-	N	N
24	1006404	BiPAP	1	HYPOTENSIVE SHOCK	YES	MULTIPLE	DOPA/DOBUTA(8)	3	1	Y	Y
25	1011494	NO	-	RESPIRATORY FAILURE,COAGULOPATHY	YES	MULTIPLE	DOPA/DOBUTA(8)	6	2	Y	Y
26	1020933	NO	-	NONE	NA	-	NA	-	-	N	N
27	1043999	NO	-	EPILEPSY	NA	-	NA	-	-	N	Y
28	1127742	BiPAP	5	RIGHT HIP SEPTIC ARTHRITIS	YES	SINGLE	NOREPI(0.4)	7	2	Y	Y
29	1049614	NO	-	NA	NA	-	NA	-	-	N	N
30	1066199	BiPAP	2	RESPIRATORY DISTRESS	YES	SINGLE	NOREPI(0.4)	2	1	N	Y
31	1029351	NO	-	BLEEDING FROM RECTUM	NA	-	NA	-	-	N	N
32	922794	NO	-	NONE	NA	-	NA	-	-	N	N
33	1062726	NO	-	RESPIRATORY FAILURE	YES	SINGLE	DOPA(8)	4	1	Y	Y
34	1089470	NO	-	RIGHT GLOBE INJURY	NO	-	NA	-	-	Y	Y
35	1113286	NO	-	IRON DEFICIENCY ANAEMIA	YES	SINGLE	DOBUTAMINE	3	1	Y	Y
36	1133716	BiPAP	3	NONE	NO	-	NA	-	-	N	N
37	1137717	NO	-	GLIAL CELL TUMOUR	NO	-	NA	-	-	N	N
38	940008	BiPAP	4	RESPIRATORY DISTRESS	YES	SINGLE	DOPA(8)	4	1	Y	Y
39	966692	BiPAP	3	RESPIRATORY DISTRESS	YES	SINGLE	DOPA(8)	3	1	N	Y
40	875827	NO	-	PRIMARY ADRENAL INSUFFICIENCY	NA	-	NA	-	-	Y	N
41	919270	NO	-	DIC	YES	MULTIPLE	EPI,NOREPI(0.5)	10	2	Y	Y
42	938271	NO	-	HYPOVITAMINOSIS D	NO	-	NA	-	-	N	N
43	1128996	NO	-	SEPTIC SHOCK	YES	SINGLE	NOREPI(0.4)	5	1	Y	Y
44	1089894	NO	-	IRON DEFICIENCY ANAEMIA	YES	SINGLE	NOREPI(0.2)	5	1	N	Y
45	1120600	NO	-	CARDIOGENIC SHOCK,VENTRICULAR TACHYCARDIA	YES	SINGLE	DOPA(8)	6	2	Y	Y
46	904316	NO	-	LV SYSTOLIC DYSFUNCTION,CEREBRAL ATROPHY	YES	MULTIPLE	DOPA/NE(8,0.5)	5	1	Y	Y
47	952856	BiPAP	5	NONE	NO	-	NA	-	-	Y	N
48	1007987	NO	-	VITAMIN B12 DEFICIENCY,HOMOCYSTENEMIA	NO	-	NA	-	-	N	N
49	1087766	NO	-	RESPIRATORY DISTRESS	NO	-	NA	-	-	N	N
50	966130	NO	-	RESPIRATORY DISTRESS	YES	SINGLE	DOBUTAMINE	4	1	N	Y

SERIAL NO	MRD NO	OTHER SPECIAL PROCEDURES	SOCIOECONOMIC STATUS	WEIGHT	HEIGHT	BMI	OFC	INFERENCE	INFERENCE1	INFERENCE1	HR	RR
1	953803	EXPLORATIVE LAPAROTOMY	LOWER MIDDLE CLASS	15	110	12.39	-	3RD-15TH CENTILE	3RD -15TH CENTILE	3RD-15TH CENTILE	100	24
2	853261	NO	LOWER MIDDLE CLASS	11	85	-	45	25TH-50TH CENTILE	25TH-50THCENTILE	25TH-50TH CENTILE	114	30
3	947507	FASCIOTOMY,GRAFTING	UPPER MIDDLE CLASS	29.5	140.5	16.4	-	25TH-50TH CENTILE	50TH-75TH CENTILE	50TH-75TH CENTILE	118	32
4	889965	NO	UPPER MIDDLE CLASS	50	163	17	-	25TH-50TH CENTILE	25TH-50THCENTILE	25TH-50TH CENTILE	90	26
5	875961	PERITONEAL DIALYSIS	UPPER MIDDLE CLASS	10	68	-	43	<3RD CENTILE	<3RD CENTILE	<3RD CENTILE	170	40
6	865660	TRACHEOSTOMY	UPPER CLASS	40	154	17.3	-	25TH-50TH CENTILE	>50TH CENTILE	25TH-50TH CENTILE	142	50
7	974513	NO	UPPER MIDDLE CLASS	26	39	13.6	-	3RD-10TH CENTILE	10TH-50TH CENTILE	3RD-10TH CENTILE	116	40
8	901517	ICD INSERTION	UPPER MIDDLE CLASS	21	131	12.23	-	25TH-50TH CENTILE	75TH-90TH CENTILE	3RD-10TH CENTILE	130	60
9	919718	LUMBAR PUNCTURE	UPPER MIDDLE CLASS	25	124	16.3	-	75TH-90TH CENTILE	75TH-90TH CENTILE	50TH-75TH CENTILE	80	ON BAINS
10	956030	NO	LOWER MIDDLE CLASS	30	130	17.75	-	50TH-75TH CENTILE	50TH CENTILE	50TH-75TH CENTILE	80	28
11	975477	NO	UPPER MIDDLE CLASS	40	160	15.62	-	25TH-50TH CENTILE	75TH-90TH CENTILE	10TH-25TH CENTILE	186	60
12	966556	NO	UPPER MIDDLE CLASS	33	140	-	-	25TH-50TH CENTILE	10TH-50TH CENTILE	25TH-50TH CENTILE	90	20
13	905144	TRACHEOSTOMY	UPPER MIDDLE CLASS	13.5	98	-	47	50TH-75TH CENTILE	50TH -75TH CENTILE	25TH-50TH CENTILE	130	ON BAINS
14	964245	NA	UPPER CLASS	8.3	74.5	-	47.5	25TH-50TH CENTILE	50TH-75TH CENTILE	50TH-75TH CENTILE	180	46
15	904316	NO	UPPER MIDDLE CLASS	22	136	11.8	-	3RD-10THCENTILE	25TH-50THCENTILE	<3RD CENTILE	142	36
16	988804	LUMBAR PUNCTURE	LOWER MIDDLE CLASS	45	155	18.75	-	10TH-25TH CENTILE	3RD-10TH CENTILE	25TH-50TH CENTILE	60	20
17	927187	ICD INSERTION	LOWER MIDDLE CLASS	20	130	13	-	3RD-15TH CENTILE	3RD-10TH CENTILE	3RD-15TH CENTILE	120	30
18	927186	NO	LOWER MIDDLE CLASS	30	132	13	-	25TH-50TH CENTILE	25TH-50THCENTILE	25TH-50TH CENTILE	80	ON BAINS
19	969233	NO	UPPER MIDDLE CLASS	22	121	15.06	-	25TH-50TH CENTILE	10TH-50TH CENTILE	25TH-50TH CENTILE	124	24
20	934048	OPEN REDUCTION AND FIXATION	UPPER MIDDLE CLASS	35	152	16.4	-	25TH-50TH CENTILE	25TH-50THCENTILE	25TH-50TH CENTILE	88	24
21	994286	NO	UPPER MIDDLE CLASS	14.4	97	-	50	3RD-10TH CENTILE	25TH-50THCENTILE	50TH CENTILE	130	36
22	994283	NO	UPPER MIDDLE CLASS	24.5	130	14.49	-	75TH CENTILE	90TH-95TH CENTILE	25TH-50TH CENTILE	100	ON BAINS
23	983720	NO	LOWER MIDDLE CLASS	13	97	-	50	3RD-10TH CENTILE	25TH-50THCENTILE	50TH CENTILE	112	36
24	1006404	NO	UPPER CLASS	40	143	19.56	-	>75TH CENTILE	50TH-75TH CENTILE	>75TH CENTILE	120	42
25	1011494	NO	LOWER MIDDLE CLASS	25	144	12.75	-	<3RD CENTILE	75TH CENTILE	<3RD CENTILE	126	44
26	1020933	NO	LOWER MIDDLE CLASS	33	141	11.78	-	25TH-50TH CENTILE	25TH-50THCENTILE	25TH-50TH CENTILE	101	24
27	1043999	NO	UPPER MIDDLE CLASS	42	151	18.42	-	10TH-25TH CENTILE	10TH-25TH CENTILE	25TH-50TH CENTILE	135	24
28	1127742	LEFT ICD,PERICARDIAL DRAIN	LOWER MIDDLE CLASS	40	163	15.09	-	3RD-10TH CENTILE	25TH-50TH CENTILE	3RD-10TH CENTILE	88	34
29	1049614	NO	UPPER CLASS	12	91	-	50	25TH-50TH CENTILE	25TH-50TH CENTILE	>50TH CENTILE	144	32
30	1066199	NO	UPPER MIDDLE CLASS	70	167	28	-	90TH CENTILE	25TH-50TH CENTILE	>97TH CENTILE	97	22
31	1029351	NO	LOWER MIDDLE CLASS	40	150	17	-	10TH-25TH CENTILE	3RD-10TH CENTILE	25TH-50TH CENTILE	97	22
32	922794	NO	UPPER CLASS	19	95	14.39	-	25TH-50TH CENTILE	25TH-50TH CENTILE	25TH-50TH CENTILE	100	24
33	1062726	NO	LOWER MIDDLE CLASS	32	140	16.32	-	50TH-75TH CENTILE	50TH-75TH CENTILE	50TH-75TH CENTILE	160	ON BAINS
34	1089470	CRANIECTOMY,ORBITAL FLOOR REPAIR	UPPER MIDDLE CLASS	21	120	15	-	25TH-50TH CENTILE	10TH-25TH CENTILE	25TH-50TH CENTILE	132	ON BAINS
35	1113286	NO	UPPER MIDDLE CLASS	12.5	86	49	-	75TH-90TH CENTILE	75TH-90TH CENTILE	75TH-90TH CENTILE	150	36
36	1133716	NO	LOWER MIDDLE CLASS	48.3	162	18.3	-	3RD-50TH CENTILE	50TH-75TH CENTILE	50TH-75TH CENTILE	100	28
37	1137717	LUMBAR PUNCTURE	UPPER MIDDLE CLASS	10	83	-	47	15TH-25TH CENTILE	25TH -50TH CENTILE	50TH CENTILE	110	28
38	940008	NO	UPPER MIDDLE CLASS	17	110	-	48	25TH-50TH CENTILE	50TH-75TH CENTILE	25TH-50TH CENTILE	134	50
39	966692	NO	UPPER MIDDLE CLASS	48	139	25.26	-	>97TH CENTILE	50TH-75TH CENTILE	>97TH CENTILE	98	38
40	875827	LUMBAR PUNCTURE	UPPER CLASS	15	96	-	49	50TH-75TH CENTILE	50TH-75TH CENTILE	50TH-75TH CENTILE	140	40
41	919270	WOUND DEBRIDEMENT,TRACHEOSTOMY	LOWER MIDDLE CLASS	11	86	-	50	15TH-25TH CENTILE	10TH-50TH CENTILE	50TH-75TH CENTILE	146	60
42	938271	NO	UPPER CLASS	50	174	16.55	-	25TH-50TH CENTILE	75TH-90TH CENTILE	10TH CENTILE	115	38
43	1128996	I AND D,CURETTAGE	LOWER MIDDLE CLASS	34.6	152	14.9	-	10TH-25TH CENTILE	10TH-25TH CENTILE	10TH CENTILE	130	30
44	1089894	NO	LOWER MIDDLE CLASS	45	145	21.4	-	50TH-75TH CENTILE	10TH-50TH CENTILE	50TH-75TH CENTILE	158	34
45	1120600	NO	UPPER CLASS	17.5	110	-	50.5	50TH-75TH CENTILE	50TH-75TH CENTILE	50TH-75TH CENTILE	140	28
46	904316	NO	LOWER MIDDLE CLASS	22	138	11.5	-	10TH-25TH CENTILE	50TH CENTILE	<10TH CENTILE	130	38
47	952856	PLASMAPHERESIS	LOWER CLASS	50	183	14.9	-	25TH-50TH CENTILE	>97TH CENTILE	3RD-15TH CENTILE	125	28
48	1007987	MRI BRAIN	UPPER MIDDLE CLASS	65	152	28.13	-	75TH-90TH CENTILE	10TH-50TH CENTILE	>97TH CENTILE	82	24
49	1087766	USG ABDOMEN	LOWER MIDDLE CLASS	25	122	13.8	-	10TH-25TH CENTILE	10TH-25TH CENTILE	10TH-25TH CENTILE	86	32
50	966130	USG ABDOMEN	UPPER MIDDLE CLASS	48	139	24.8	-	>97TH CENTILE	>97TH CENTILE	>97th CENTILE	130	34

SERIAL NO	MRD NO	TEMPERATURE	SBP	DBP	SPO2	GCS (ADMISSION)	GCS GP	SYSTEMIC	TLC	HB	PLATELETS	UREA	CREATININE	SODIUM	POTASSIUM	CHLORIDE
1	953803	99	100	60	98	15	3	ABDOMEN TENDER AND DISTENDED	19.4	11.9	470	11	0.16	137	4	102
2	853261	98.6	80	60	88	7	1	BILATERAL CREPTS,GCS-7/15	18.7	10.6	230	48	0.25	138	4.06	106
3	947507	98	110	70	96	15	3	REDUCED AIR ENTRY AND CREPTS LEFT SIDE	7.8	10.1	114	78	2.26	140	3.19	105
4	889965	99	110	70	96	12	2	HEPATOSPLENOMEGALY	1.7	11.9	23000	25	0.57	135	4.21	107
5	875961	98.6	100	60	98	15	3	TACHYPNEA	16.3	9.5	287	148	6.72	132	5.25	93
6	865660	99.6	98	50	96	15	3	HEPATOMEGALY	11.8	9.6	271	45	0.57	137	3.7	98
7	974513	97.6	90	40	97	15	3	COOL EXTREMITIES,HEPATOMEGALY	13.6	12.3	185	67	0.32	133	4.52	97
8	901517	99.6	90	60	94	15	3	BILATERAL CREPTS	2.6	11.1	95000	10	0.43	142	4.3	108
9	919718	98	100	60	95	3	1	BRISK DTR's	11.6	11.1	320	42	0.5	140	4.46	105
10	956030	99	100	60	98	15	3	HEPATOSPLENOMEGALY	19.9	11.2	490	26	0.46	140	3.5	106
11	975477	101	90	40	98	15	3	TACHYPNEA	20	10.8	60000	27	0.52	137	4.45	108
12	966556	100.6	100	60	96	12	2	NAD	8.1	13.6	50000	44	0.62	139	5.7	108
13	905144	AFEBRILE	90	60	95	3	1	NAD	10.3	7.2	2,01,000	50	0.64	133	3.28	96
14	964245	100.6	90	60	98	13	3	LIVER PALPABLE 3 CM BELOW RCM	4.8	7.9	139	16	0.16	140	3.16	106
15	904316	96.8	94	54	96	15	3	NAD	15.7	2.4	536	40	0.21	133	5.64	98
16	988804	97	120	80	99	15	3	BRISK DTRS	3.5	12.9	153	30	0.45	136	4.59	102
17	927187	99	110	70	98	15	3	DULL NOTE ON LEFT SIDE OF CHEST	3.8	7.8	150	22	0.21	141	3.79	101
18	927186	99	100	60	94	3	1	SLUGGISH PUPILS	8.1	11.4	150	21	0.39	141	4.65	108
19	969233	99	80	60	96	15	3	HEPATOMEGALY	15.3	14.7	22000	56	0.72	133	4.31	95
20	934048	98	110	60	97	12	2	SLUGGISH PUPILLARY REACTION	8.6	10.1	237000	37	0.5	149	3.31	101
21	994286	99	80	50	84	6	1	COOL EXTREMITIES	11.1	10.5	1,50,000	18	0.33	138	4.36	106
22	994283	99	100	60	80	6	1	SHOCK	8.1	8.6	2,00,000	21	0.48	143	4.79	111
23	983720	99.2	100	60	98	15	3	NORMAL	16.7	8.5	1,00,000	17	0.29	138	4.04	103
24	1006404	97.6	92	44	96	15	3	RESPIRATORY DISTRESS	17.5	8.8	72,000	32	0.34	139	3.61	109
25	1011494	97	100	60	92	15	3	RESPIRATORY DISTRESS,SYSTOLIC MURMUR	12	9.5	338	83	0.62	143	4.59	105
26	1020933	99	130	80	98	15	3	INABILITY TO BEAR WEIGHT ON LEGS	12	10.6	2,78,000	15	0.43	139	4.65	99
27	1043999	104.5	100	60	98	15	3	HEPATOMEGALY	16	9.9	2,86,000	37	0.69	126	4.25	93
28	1127742	101	100	50	98	15	3	REDUCED AIR ENTRY ON RIGHT SIDE	26.6	8.6	2,23,000	86	1.35	128	4.93	90
29	1049614	98	100	60	98	15	3	LIVER 6 CM BELOW RCM	12	10.8	3,31,000	23	0.33	132	4.2	92
30	1066199	98	100	60	97	15	3	HEPATOMEGALY	5.7	11.1	1,10,000	32	0.24	134	4.22	99
31	1029351	97.8	100	60	98	15	3	TENDERNESS IN ABDOMEN	10	10	56,000	27	0.45	135	4.5	96
32	922794	98	100	60	97	15	3	HEPATOMEGALY	13	11.2	2,60,000	22	0.4	132	4.2	97
33	1062726	97	60	40	92	3	1	GALLOP RHYTHM,HEPATOMEGALY	7.7	13.9	1,20,000	92	1.82	142	3.7	110
34	1089470	102	107	68	98	6	1	LOW GCS	12	9.3	2,20,000	40	0.45	134	3.5	95
35	1113286	99.4	100	60	98	15	3	HEPATOMEGALY	23.2	10.5	2,67,000	42	0.3	141	4.9	105
36	1133716	96	110	70	98	15	3	NORMAL	10.2	11.2	1,68,000	24	0.4	140	3.8	98
37	1137717	98	100	60	97	15	3	NORMAL	9.5	10.4	1,65,000	29	0.21	139	4.13	107
38	940008	97	80	40	92	15	3	HEPATOMEGALY	10	10.4	60,000	23	0.5	136	4.5	98
39	966692	96	90	60	97	15	3	HEPATOMEGALY	13	12	70,000	39	0.6	136	4.7	98
40	875827	98.6	70	40	96	13	3	NECK STIFFNESS	8.4	10.2	2,27,000	26	0.3	150	4.95	121
41	919270	98	80	40	94	11	2	BRONCHIAL BREATHING	5	8.3	80,000	95	1.65	134	6.6	101
42	938271	96	90	60	98	15	3	NORMAL	16.4	15.4	1,67,000	22	1.02	124	4.01	98
43	1128996	98	104	60	96	15	3	RESTRICTED LEFT LEG MOVEMENTS	14.9	11	1,30,000	61	1.02	132	3.04	100
44	1089894	100.4	100	60	96	9	2	ACIDOTIC BREATHING	13	13.2	1,71,000	38	1.15	156	3.25	121
45	1120600	98.4	90	50	96	15	3	MASSIVE HEPATOMEGALY	8.7	10.3	390	23	0.37	138	4.63	102
46	904316	97	90	50	97	10	2	ACTIVE SEIZURES	22	6.7	1,10,000	45	0.53	128	4.26	98
47	952856	100	130	80	97	15	3	TENDERNESS IN ABDOMEN	12	8.6	20,000	47	0.72	144	4.05	111
48	1007987	98.7	100	60	98	13	3	NECK STIFFNESS	12	12.2	2,00,000	38	0.45	138	4.32	98
49	1087766	100	110	70	95	15	3	CREPTS BILATERAL	14	11.5	1,50,000	32	24	137	4.5	98
50	966130	98	100	60	96	15	3	HEPATOMEGALY	12	12.6	60,000	40	0.45	138	4.3	98

SERIAL NO	MRD NO	CRP	PHYSICAL SCORE	EMOTIONAL HEALTH	SOCIAL SCORE	PHYSICAL HEALTH SCORE 2WEEKS	PSYCHOSOCIAL HEALTH SCORE 2weeks	3 MONTHS PHY	3 MONTHS PSYCHO	PARENTS PHYSICAL SCORE	PARENTS EMOTIONAL SCORE	PARENTS SOCIAL SCORE	PARENTS PHYSICAL SCORE 2WKS	PARENTS PSYCHOSOCIAL HEALTH SCORE 2WKS	PARENTS 3 MONTHS PHY	PARENTS 3 MONTHS PSYCHO
1	953803	207.15	75	100	100	75	100	100	100	75	100	100	75	100	75	100
2	853261	180	-	-	-	-	-	-	-	41.6	15	25	41.6	15	50	15
3	947507	300	53.1	85	90	53.1	95	60	100	59.3	55	100	59.4	85	65	85
4	889965	111.73	56.25	100	100	56.25	100	70	100	56.25	100	100	56.25	100	70	100
5	875961	55.06	-	-	-	-	-	-	-	50	65	80	50	72.5	60	80
6	865660	23.5	25	30	100	25	61.6	35	70	40.6	55	100	40.6	70	50	70
7	974513	199.35	95	75	70	95	72.5	95	80	43.75	35	70	43.75	52.5	50	62.5
8	901517	66.66	90	65	95	90	80	100	100	62.5	70	100	62.5	85	70	90
9	919718	4.38	6.25	70	100	6.25	85	30	85	6.25	65	55	6.25	60	30	80
10	956030	95.15	50	65	30	50	47.5	65	50	50	47.5	30	50	60	50	60
11	975477	0.8	68.75	75	100	68.75	87.5	70	90	68.75	75	100	68.75	87.5	70	90
12	966556	1.4	78.1	100	100	78.1	100	80	100	78.1	100	100	78.1	100	80	100
13	905144	48.27	0	30	0	0	1.7	0	20	0	0	1.7	0	20	0	20
14	964245	253.52	-	-	-	-	-	-	-	75	75	95	75	85	90	100
15	904316	12.73	87.5	75	90	87.5	86	90	90	85	80	90	85	90	90	100
16	988804	0.63	87.5	85	100	87.5	42.5	90	60	87.5	85	100	87.5	42.5	90	60
17	927187	5	31.25	100	70	31.25	85	40	90	31.25	100	65	31.25	82.5	40	90
18	927186	3	78.1	100	75	78.1	87.5	80	90	68.75	100	75	68.75	87.5	70	90
19	969233	0.79	100	75	100	100	87.5	100	100	100	75	100	100	87.5	100	100
20	934048	2	56.25	65	100	56.25	42.5	70	50	50	50	100	50	35	60	40
21	994286	0.05	68.75	7	100	68.75	85	70	90	70	70	90	70	80	80	80
22	994283	0.38	50	80	80	50	80	60	82	40	80	80	40	80	50	80
23	983720	141.64	87.5	80	100	87.5	90	90	90	87.5	80	100	87.5	90	90	90
24	1006404	234.97	25	85	75	25	80	50	82	25	95	75	25	85	40	90
25	1011494	214.89	50	70	85	50	77.5	60	80	48	75	75	48	75	50	80
26	1020933	0.57	68.75	100	75	68.75	87.5	70	90	68.75	100	75	68.75	87.5	70	90
27	1043999	20.31	68.75	75	75	68.75	75	80	90	65	75	75	65	75	70	90
28	1127742	272.96	56.25	50	75	56.25	62.5	65	70	25	75	75	25	75	40	80
29	1049614	36.98	-	-	-	-	-	-	-	75	55	100	75	77.5	80	80
30	1066199	16	75	65	100	75	82.5	80	85	75	75	65	75	82.5	80	85
31	1029351	20.56	87.5	75	90	87.5	90	90	90	87.5	85	100	87.5	42.5	90	60
32	922794	10.02	50	80	80	50	80	60	87.5	40	80	80	40	80	50	82
33	1062726	133.32	50	25	50	50	37.5	70	50	50	25	50	50	37.5	40	40
34	1089470	22	25	30	75	25	52.5	30	60	28	30	60	28	45	30	50
35	1113286	101	-	-	-	-	-	-	-	56.25	70	75	56.25	72.5	60	80
36	1133716	33.9	50	80	80	50	80	60	87.5	40	80	80	40	80	50	82
37	1137717	3	-	-	-	-	-	-	-	50	75	25	50	50	40	40
38	940008	7.2	-	-	-	-	-	-	-	75	75	75	75	75	90	90
39	966692	12	50	50	50	50	50	60	70	50	50	50	50	50	50	60
40	875827	222.18	-	-	-	-	-	-	-	25	65	100	25	82.5	40	90
41	919270	270.27	-	-	-	-	-	-	-	31.25	30	40	31.25	35	40	40
42	938271	8.9	87.5	100	100	87.5	100	90	100	85	100	100	85	100	90	100
43	1128996	171	37.5	65	75	37.5	70	50	80	25	60	75	25	67.5	40	70
44	1089894	49.22	50	75	100	50	87.5	60	90	50	60	100	50	80	60	90
45	1120600	6.88	-	-	-	-	-	-	-	43.75	50	100	43.75	75	50	80
46	904316	64.68	25	40	35	25	37.5	40	40	18.75	40	35	18.75	37.5	30	40
47	952856	50	25	100	100	25	100	40	100	25	100	100	25	100	40	100
48	1007987	34	87.5	100	100	87.5	100	90	100	87.5	100	100	87.5	100	90	100
49	1087766	45	82.5	100	100	82.5	100	90	100	75	80	100	75	90	90	90
50	966130	82	68.75	50	50	68.75	50	70	70	62.5	50	50	62.5	50	70	60

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Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 22.01.2021 has approved the plan of thesis of **Dr. Nikita Beri**, a student of your college for **MD Paediatrics** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis
Health related quality of life after pediatric intensive care unit stay

Supervisor
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The student has to submit the three copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

S P Singh

Dr. S P Singh MS(Oph)
Controller of Examinations

Note :

1. ***If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.***
2. *The student may submit the thesis as per the schedule already conveyed i.e for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.*

HEALTH RELATED QUALITY OF LIFE AFTER PAEDIATRIC INTENSIVE CARE UNIT STAY

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MD

In

PAEDIATRICS

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

NOVEMBER, 2019

DR. NIKITA BERI

DEPARTMENT OF PAEDIATRICS
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF THESIS

TITLE	HEALTH RELATED QUALITY OF LIFE AFTER PEDIATRIC INTENSIVE CARE UNIT STAY
DEGREE	MD Pediatrics
NAME OF THE CANDIDATE	Dr. Nikita Beri
SUPERVISOR	Dr. Siddharth Bhargava, Associate Professor Department of Pediatrics, DMC&H, Ludhiana
CO – SUPERVISOR	Dr. Puneet A. Pooni, Professor & Head, Department of Pediatrics, DMC&H, Ludhiana
INSTITUTION	Dayanand Medical College & Hospital, Ludhiana
UNIVERSITY	Baba Farid University of Health Sciences, Faridkot

INTRODUCTION: Paediatric critical care has taken major strides over the last few decades, resulting in increased survival rates in critically ill. During the past few years, the progressive reduction in pediatric intensive care unit (PICU) mortality rates and the recognition that some children were surviving with poor functional status suggested the need of other quality of care indicators in addition to the traditional PICU outcomes (such as mortality, length of stay, or use of mechanical ventilation). Health Related Quality of Life (HRQoL) is one such tool to assess the overall well being and functional status of children. Hence, this study is being planned to evaluate the quality of life of children after discharge from Paediatric ICU using HRQoL assessment tool.

AIM OF STUDY: To assess the Health Related Quality of Life (HRQoL) outcomes in children on follow up after discharge from the Pediatric ICU.

MATERIALS & METHODS: A prospective evaluation of HRQoL within two weeks and at 3 months will be done on children from 2 -18 years of age after discharge from the Pediatric ICU of Dayanand Medical College and Hospital, Ludhiana after a minimum stay of 3 days,who will be called up for follow up within 2 weeks of discharge and subsequently at 3 months after discharge. On both visits, patients will be assessed for their HRQOL which will be measured using the HRQoL Questionnaire-Peds Quality of Life Inventory(Version 4.0) .Based on their scores calculated using this tool,children will be assessed and categorized for their quality of life and HRQoL will be compared between these 2 visits after discharge and will also be correlated with their baseline status at admission using Functional Status Score.The Functional Status Score will also be used as a baseline score and will be used to compare the quality of life after PICU stay. Statistical Analysis- Continuous data will be compared with the Students T test and the Mann-Whitney test will be used for non parametric variables.

CLINICAL SIGNIFICANCE: The study will help us to assess the overall quality of life during various stages of follow up of children admitted in the pediatric intensive care unit. Ideally, HRQOL instruments should be multidimensional and consist at the minimum of physical, mental and social dimensions as outlined by the World Health Organisation.

KEYWORDS - Quality of life, pediatric intensive care units, morbidity, outcome assessment.

Nikita
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Candidate

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Co-supervisor

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Supervisor

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Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"HEALTH RELATED QUALITY OF LIFE AFTER PEDIATRIC INTENSIVE CARE UNIT STAY"** exist in the Department of Paediatrics, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis is genuine and is collected by the candidate herself under our supervision and guidance.

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APPROVAL PROFORMA
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Department	Pediatrics
Topic of Thesis	HEALTH RELATED QUALITY OF LIFE ON FOLLOW UP AFTER PEDIATRIC INTENSIVE CARE UNIT STAY
Likely date of appearing in PG examination	May 2022
Date of enrollment	6th May, 2019
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Dr. Rajoo Singh Chhina (Dean Academics)	Dr. Neena Sood (Professor & Head, Pathology)
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	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / ~~No~~

Dr. Sandeep Puri
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Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
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4	DATE OF ADMISSION OF COURSE	6th May,2019
5	TITLE OF THE TOPIC	HEALTH RELATED QUALITY OF LIFE AFTER PEDIATRIC INTENSIVE CARE UNIT STAY

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

The development of paediatric intensive care units (PICU's) has contributed to improved survival in children with critical illnesses. As a result of improved survival new disease patterns evolved. Outcome assessment should therefore consist of evaluation of morbidity and well being. Functional health and Health Related Quality of Life (HRQoL) are used as outcome measures to evaluate patient's well being. In 1948, the World Health Organization defined health as 'a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity' .Quality of life (QoL) is defined as an individual's perception of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns. HRQoL is defined as QoL in which a dimension of personal judgement over one's health and disease is added. In case of children, HRQoL is influenced also by factors such as the ability to participate in peer groups and the ability to keep up with developmental activities.

Additionally, many children admitted to the PICU have chronic course of disease, with functional disability and impaired HRQoL. Thus, it is extremely important to assess the benefits of intensive care in these children by looking the changes in their health status at two weeks and at 3 months after discharge. Several studies evaluated the HRQoL of children admitted to the PICU but few have provided a prospective evaluation of changes after PICU discharge.

Hospitalization in PICU places children at increased risk of persistent psychological and behavioral difficulties following discharge, besides physical impact. Despite tremendous advances in medical technology and treatment regimes, approximately 25% of children demonstrate negative psychological and behavioral outcomes within the first year post-discharge. It is necessary that a wider array of risk factors and outcome indicators be explored in examining long-term psychological

morbidity to identify areas for future health promotion and clinical intervention.

This study aims to create new information regarding the magnitude and duration of psychological and behavioral disturbances among children admitted to PICUs, ultimately helping in devising preventive measures. Specifically, we will examine a broader array of age-appropriate, psychological and behavioral response indicators than have been used previously, explore parents' and children's perceptions of their well-being, and identify risk factors that may impact post-PICU recovery. Data from the Indian subcontinent on this topic is scarce, although Western studies are available. Hence this study will be undertaken to assess this newer aspect of critical care. Also, assessment of the HRQoL in follow up patients of PICU could additionally help in changes in management during the acute stay.

6.2 REVIEW OF LITERATURE

Cunha F et al conducted a prospective evaluation of the Health related quality of life of children surviving post Pediatric Intensive care unit discharge.HRQoL was measured with the Health Utilities Index Mark 3 (HUI3) questionnaire, administered to a child's proxy.Although the HRQoL was globally similar in both evaluations, several differences were found at the individual level. Children with low preadmission HRQoL (severe disability) may benefit from pediatric intensive care, since many of these children improved their HRQoL compared to preadmission status.Most of the children who had a deterioration of quality of life at follow up were trauma victims.[1]

Conlon, Niamh P et al investigated the long term health related quality of children requiring prolonged PICU stay(more than 28 days) .Results indicate that, while long PICU stay is associated with significant mortality, the long-term HRQOL is normal for the majority of surviving children.[2]

Gillian A. Colville et al conducted a study whose main aim was to establish children's own views of their outcome after discharge from PICU.The setting was a 21 bedded PICU in a tertiary care hospital. Patients completed the Pediatric Quality of Life Inventory and a post-traumatic stress screener, at 3 months and again at 1 year (n = 72) after discharge from PICU. Measurements and Main Results: At 3 months post-discharge, the mean total Pediatric Quality of Life Inventory score reported by the PICU group was lower than that reported in the literature for a non-clinical community sample. The self-report version of the Pediatric Quality of Life Inventory proved to be a feasible and sensitive tool for assessing health related quality of life in this group of PICU survivors.[3]

Poongundran Namachivayam et al aimed at describing the characteristics of children admitted to the pediatric intensive care unit and their long term outcome modalities.[1-6] Pediatric intensive care should not only attempt to save the lives of critically ill children, but should also strive to maximize the quality of those lives. Measures of the effectiveness of pediatric intensive care should, therefore, include

physical and psychological sequelae, as well as the quality of life in survivors and their families.[7–10] A full evaluation of long-term outcomes is fundamental to the evaluation of the effectiveness of intensive care, in resource allocation, and in planning the long-term care of patients after discharge from the intensive care unit. The increasing number of survivors from pediatric intensive care who have a moderate or severe long-term disability has major emotional, practical, and financial implications for the individual and the family, and has important resource implications for the whole community.

Gemke et al [5] found that the majority of children had good outcomes at 1 yr, both in the sense of absence of impairment and in relation to their premorbid status. However, for some children in their sample, emotional health appeared to deteriorate over the year, despite their physical improvement. This finding is consistent with the growing literature on long-term psychological outcomes in this population.[5]

Ong, C., Lee, J. H., Leow, M. K., & Puthucheary, Z. A. carried out a study in which three global assessment tools and eight multidimensional measures were used to measure functional outcome in pediatric survivors of critical illness. Rates of acquired functional impairment in a general pediatric intensive care cohort ranged from 10% to 36% at discharge and 10% to 13% after more than 2 years. Risk factors for acquired functional impairment include illness severity, the presence of organ dysfunction, length of ICU stay, and younger age. There is some evidence that physical impairment may be more severe and persistent than psychosocial component.Conclusion was that functional impairment may be persistent in pediatric survivors of critical care.[6]

Branka Polic et al studied the changes in long-term quality of life (QOL) of children treated in paediatric intensive care unit (PICU) were investigated in relation to their QOL before critical illness together with the influence of underlying chronic health condition and severity of illness estimated by Paediatric Index of Mortality 2 on the long-term outcome. This study included 189 children treated in PICU and 179 children from outpatient clinics as controls. Reduced QOL was

significantly more frequent in children with neurodevelopmental disability than in children without CHC 24 months after discharge from PICU ($p = 0.013$). Conclusion: Acute illness has a significant impact both on children with and without CHC after treatment in PICU 6 months after discharge. Twenty-four months after discharge, comorbidity was identified as the decisive factor for diminished QOL in children after PICU treatment.

Also, The preadmission comorbid status was found to be an important denominator of QOL after intensive care, due to its continuous impact on patients' condition.[7]

Hendrika Knoester et al did a prospective cohort study in a 14 bedded tertiary ICU and compared the quality of life in children 3 months and 9 months after follow up.n this small group of PICU survivors differences in HRQoL with the normative population exist three and nine months after discharge. Calculated effect sizes were smaller nine months after discharge. These changes suggest that HRQoL improves over time. Apparently PICU admission impacts HRQoL three and nine months after discharge. More research is necessary but we believe that HRQoL assessment should be incorporated in follow-up programs of PICU survivors. It should include (1) HRQoL evaluation, (2) evaluation of risk factors for decreased HRQoL and (3) support after discharge if needed. Because awareness of HRQoL consequences and physical sequelae could lead to changes in treatment during the acute phase, pediatric intensivists should be core members of PICU follow-up programs.[8]

Lara Nelson;Jeffrey Gold; included all descriptive, observational, and controlled studies with a focus on posttraumatic stress disorder and the pediatric intensive care unit . Following admission to the pediatric intensive care unit, both children and their parents have high rates of trauma exposure, both personally and secondary exposure via other children and their families, and subsequently are reporting significant rates of posttraumatic stress disorder. To effectively treat our patients, we must recognize the signs of posttraumatic stress disorder and strive to mitigate the negative effects.[9]

Kathleen Kastner, Neethi Pinto, Michael E Msall3 and Sarah Sobotka4 reported that there can be significant morbidity for children following PICU admission. The impact that PICU admission has on school attendance and performance may be the source of some of the sequelae of critical illness. However, current supports are limited for addressing these needs. Families report inadequate support from schools and worsening academic performance after critical illness. The transition back to school can be challenging. Additional studies are needed to develop proactive supports, such as PICU follow up programs, to improve the care of children following critical illness.[10]

Jayshree M, Singhi SC, Malhi P. et al carried out a prospective study lin which patients admitted to ICU were enrolled prospectively over a period of 1 year. Children with ICU stay of less than 24 hrs, infants, readmission to ICU were however excluded. Survival was determined at the time of ICU discharge and 1 year later. Health status assessment was done with the help of the multiattribute health status classification (MAHSC), which has 6 domains; sensation, mobility, emotion, cognition, self care and pain. Assessment was done at two points of time - within 48 hours of admission to the ICU and 1 year after discharge. Quality of life in three-quarters of the patients was preserved and one year survival was favorable. Worsening was noted primarily in-patients with neurological illnesses.[11]

Rennick JE et al studied that Critically ill children are at risk for psychological sequelae following pediatric intensive care unit hospitalization. This article reports on the psychometric testing of the first self-report measure of psychological distress for 6-12-yr-old children post-pediatric intensive care unit hospitalization: The Children's Critical Illness Impact Scale. This 23-item scale takes approximately 15 mins for children to complete. The Children's Critical Illness Impact Scale is a promising new self-report measure of psychological distress with demonstrated reliability and validation testing in 6-12-yr-old children post-pediatric intensive care unit hospitalization. This new measure has potential to advance the

evidence base for pediatric intensive care unit and post-pediatric intensive care unit health promotion interventions.[12]

Ebrahim S[1], Singh S, Hutchison JS, Kulkarni AV, Sananes R, Bowman KW, Parshuram CS carried out a prospective observational study which evaluated children's adaptive behavior functioning with the Vineland Adaptive Behavior Scale-2, functional outcomes with the pediatric cerebral performance category and pediatric overall performance category, and health-related quality of life with the Pediatric Quality of Life Inventory 4 and Visual Analogue Scale. Children surviving PICU have significant adaptive behavior functioning and functional morbidity and reduced health-related quality of life. Although neurologic morbidity following ICU was associated with baseline state, we found that resuscitation intensity and illness severity factors were independently associated with the development of acquired brain injury and reduced quality of life.[13]

Fiser DH, Tilford JM, Roberson PK conducted a prospective multicentred cohort study in which functional outcomes were measured by the Pediatric Overall Performance Category (POPC) and Pediatric Cerebral Performance Category (PCPC) scales. Both scales were assessed at baseline and discharge from the PICU.[14]

Mestrovic J,Polic B et conducted a prospective study in which the discharge functional status was significantly dependent on the preadmission functional status and on predicted mortality. Children with neurodevelopmental disabilities had the significantly worse baseline score and the significantly smaller deterioration of functional morbidity at discharge compared to children with no chronic disease and children with other chronic diseases.[15]

Eiser C et al conducted systematic researches to identify measures of QoL. Primary research papers were coded by the authors on the basis of predefined inclusion and exclusion criteria.[16-18]

Morrison AL[1], Gillis J et al conducted a prospective survey where the quality of life was measured by using the Royal Alexandra Hospital for Children Measure of Function. The scale has two components, the first part completed by the clinician after parent interview and the second

part completed separately by the parent. Results indicated that the long-term outcome in terms of quality of life after admission to a pediatric intensive care unit is good or normal for the majority of surviving children. Those children with a poor outcome are likely to have significant comorbidities or a diagnosis of malignancy.[19]

Davydow And Richardson conducted a study to review the prevalence of psychiatric syndromes in pediatric critical illness survivors as well as to summarize data on vulnerabilities and pediatric intensive care unit (PICU) exposures that may increase risk of developing these syndromes. The most commonly assessed psychiatric disorders were posttraumatic stress disorder (PTSD) and major depression.[20-22]

6.3 AIMS AND OBJECTIVES OF THE STUDY

1. To study the health related quality of life in children after discharge from Pediatric ICU.
2. To study the factors during PICU stay which affect the Health Related Quality of Life of children on follow up.

7. MATERIALS AND METHODS

The study would be carried out in the PICU Follow up clinic of the Department of Pediatrics, Dayanand Medical College and Hospital, Ludhiana.

7.1 Source of Data

A prospective observational study will be done on children aged 2-18 years of age and having PICU stay of > 3 days who follow up in the PICU clinic after being discharged.

7.2 METHOD OF COLLECTION OF DATA

Written consent will be obtained from each patient after explaining the procedure in his/her vernacular language to allay fear and anxiety.

A detailed history about the quality of life would be taken through a structured proforma.

The proforma would be handed over to the parents for children less than 7 years of age and to the children in case of 7 years or older.

Inclusion criteria

A study had to meet the following criteria to be included in this review:

1. The target population had to be children discharged from the Pediatric ICU aged 2-18 years of age.
2. Children admitted in the Pediatric ICU for more than 3 days.

Exclusion criteria

1. Children less than 2 years of age and more than 18 years of age.
2. Duration of ICU stay <= 3 days.
3. Children who died or took discharge against medical advice.
4. Children with significant background morbidities before the onset of illness requiring admission to PICU like neurodevelopmental disorders and major congenital malformations

Relevant papers were selected by screening the titles (first step), abstracts (second step), and entire articles (third step), retrieved through the database searches. During each step, respectively, the title, abstract, or entire article was screened to ensure that it met the selection criteria.

Duration of the study

This is a prospective observational study from Jan 2020 to March 31st 2021 (including followup)

OUTCOME

The study will help us to assess the overall quality of life during various stages of follow up of children admitted in the pediatric intensive care unit and to assess the morbidity that PICU survivors are left behind after discharge. It will also help to correlate the severity of illness during PICU stay with their morbidities and functional status on follow up.

Statistical Analysis

Data will be described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate. Comparison of quantitative variables will be done using paired t- test. For comparing categorical data, Chi square ($\chi 2$) test will be performed and exact test was used when the expected frequency is less than 5. A probability value (p value)less than 0.05 will be considered statistically significant. All statistical calculations will be done using SPSS (Statistical Package for the Social Science) SPSS 21 version statistical program for Microsoft Windows

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

No

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Attached herewith

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INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o, S/o.....

am willing to participate in the study **"HEALTH RELATED QUALITY OF LIFE AFTER PEDIATRIC INTENSIVE CARE UNIT STAY"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

.....
Signature of the Witness

Name:

.....
Signature of the patient

Signature of Candidate

Signature of Supervisor

मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य **"HEALTH RELATED QUALITY OF LIFE AFTER PEDIATRIC INTENSIVE CARE UNIT STAY"** में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____	_____
गवाह के हस्ताक्षर	रोगी के हस्ताक्षर/अंगूठे का निशान
नाम:	नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫ਼ਾਰਮ

ਮਿਤੀ _____

ਮੈ _____ ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ _____

ਵਾਸੀ _____

"HEALTH RELATED QUALITY OF LIFE ON FOLLOW UP AFTER PEDIATRIC INTENSIVE CARE UNIT STAY" ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ _____ ਮਿਤੀ _____

ਪਤਾ _____ ਪਤਾ _____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ

PROFORMA

S.NO-

Name -	Age/Sex –
MRD No. -	Admission Number-
DOA -	DOD-

- Diagnosis/ primary system involved –
- Symptoms at admission -
- Number of readmissions to PICU –
- PICU Stay –
- Nutritional status at admission-
- Oxygen Delivery Device used-Simple face mask/Non Rebreathing Mask/Nasal Prongs/HFNC
- Invasive ventilation - Yes/No (No. of days -)
- Non- Invasive ventilation - Yes/No (No. of days -)
- Duration of Ventilation-
- Any underlying significant condition –
- Inotropic support - Yes/No (Single/multiple, No. of days -)
- CVS Support

Inotropes	Duration of use	Maximum Dose
Dopamine		
Dobutamine		
Milrinone		
Epinephrine		
Norepinephrine		

Respiratory Support

Signature of candidate :

Signature of Supervisor:

Duration of Ventilation	Maximum PEEP pressures	Maximum FIO2 requirement	Maximum PIP(Peak Inspiratory Pressure)

- Central line - Yes/No
- Arterial Line - Yes/No
- Other special procedure -
- PRISM score
- SOFA Score
- Socio – economic status (according to Kuppuswamy scale version 2018)
    - Upper class
    - Upper middle class
    - Lower middle class
    - Upper lower class
    - Lower class

EXAMINATION –

Anthropometry	Actual	Expected	Inference
Weight			
Height			
BMI			
OFC			

Mention grade of PEM -

- Vital Parameters –
    - HR
    - RR
    - Temp

Signature of candidate : **Signature of Supervisor:**

- BP
- SPO2
- GCS Score

- Systemic Examination
  - CNS
  - Respiratory –
  - CVS
  - P/A
- Investigations –
  - Hemogram –
  - RFTs-
  - LFTs-
  - CRP/ESR
  - Other special investigations

- Functional Status Score (FSS)

Signature of candidate :

Signature of Supervisor:

PedsQL™

Paediatric Quality of Life Inventory

Version 4.0 - English (India)

TEEN REPORT (ages **13-18**)

DIRECTIONS

On the following pages is a list of things that might be a problem for you. Please tell us **how much of a problem** each one has been for you during the **past ONE month** by circling:

0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem

There are no right or wrong answers.
If you do not understand a question, please ask for help.

*In the past **ONE month**, how much of a **problem** has this been for you…*

ABOUT MY HEALTH AND ACTIVITIES ***(problems with…)*** **Never Almost Never Sometimes Often Almost Always**

1. It is difficult for me to walk more than 100 metres 0 1 2 3 4
2. It is difficult for me to run 0 1 2 3 4
3. It is difficult for me to do sports activity or exercise 0 1 2 3 4
4. It is difficult for me to lift something heavy 0 1 2 3 4
5. It is difficult for me to take a bath or shower by myself 0 1 2 3 4
6. It is difficult for me to do chores around the house 0 1 2 3 4
7. I feel pain 0 1 2 3 4
8. I have low energy 0 1 2 3 4

ABOUT MY FEELINGS ***(problems with…)*** **Never Almost Never Sometimes Often Almost Always**

1. I feel afraid or scared 0 1 2 3 4
2. I feel sad 0 1 2 3 4
3. I feel angry 0 1 2 3 4
4. I have trouble sleeping 0 1 2 3 4
5. I worry about what will happen to me 0 1 2 3 4

HOW I GET ALONG WITH OTHERS ***(problems with…)*** **Never Almost Never Sometimes**

Often Almost
Always
1. I have trouble getting along with other teens 0 1 2 3 4
2. Other teens do not want to be my friend 0 1 2 3 4
3. Other teens tease me 0 1 2 3 4
4. I cannot do things that other teens of my age can do 0 1 2 3 4
5. It is difficult to keep up with the teens of my age 0 1 2 3 4

ABOUT SCHOOL *(problems with...)* Never Almost
Never
Sometimes
Often Almost
Always
1. It is difficult to pay attention in class 0 1 2 3 4
2. I forget things 0 1 2 3 4
3. I have trouble keeping up with my schoolwork 0 1 2 3 4
4. I miss school because of not feeling well 0 1 2 3 4
5. I miss school to go to the doctor or hospital 0 1 2 3 4

PedsQL™

Version 4.0 - English (India)

PARENT REPORT for TEENS (ages 13-18)

DIRECTIONS

On the following page is a list of things that might be a problem for **your teen**
Please tell us **how much of a problem** each one has been for **your teen** during the **past ONE month** by circling:
0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem
There are no right or wrong answers.
If you do not understand a question, please ask for help.

*In the past **ONE month**, how much of a **problem** has your teen had with ...*

PHYSICAL FUNCTIONING *(problems with...)* Never Almost
Never
Sometimes
Often Almost
Always
1. Walking more than 100 metres 0 1 2 3 4
2. Running 0 1 2 3 4
3. Participating in sports activity or exercise 0 1 2 3 4
4. Lifting something heavy 0 1 2 3 4
5. Taking a bath or shower by him or herself 0 1 2 3 4
6. Doing chores around the house 0 1 2 3 4
7. Having hurts or aches 0 1 2 3 4
8. Low energy level 0 1 2 3 4

EMOTIONAL FUNCTIONING *(problems with...)* Never Almost
Never

Sometimes
Often Almost
Always
1. Feeling afraid or scared 0 1 2 3 4
2. Feeling sad 0 1 2 3 4
3. Feeling angry 0 1 2 3 4
4. Trouble sleeping 0 1 2 3 4
5. Worrying about what will happen to him or her 0 1 2 3 4

SOCIAL FUNCTIONING *(problems with...)* Never Almost
Never
Sometimes
Often Almost
Always
1. Getting along with other teens 0 1 2 3 4
2. Other teens not wanting to be his or her friend 0 1 2 3 4
3. Getting teased by other teens 0 1 2 3 4
4. Not able to do things that other teens of his or her age can do
0 1 2 3 4
5. Keeping up with other teens 0 1 2 3 4

SCHOOL FUNCTIONING *(problems with...)* Never Almost
Never
Sometimes
Often Almost
Always
1. Paying attention in class 0 1 2 3 4
2. Forgetting things 0 1 2 3 4
3. Keeping up with school work 0 1 2 3 4
4. Missing school because of not feeling well 0 1 2 3 4
5. Missing school to go to the doctor or hospital 0 1 2 3 4

PedsQL™

Version 4.0 - English (India)

CHILD REPORT (ages 8-12)

DIRECTIONS

On the following page is a list of things that might be a problem for you. Please tell us **how much of a problem** each one has been for you during the **past ONE month** by circling:
0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem
There are no right or wrong answers.
If you do not understand a question, please ask for help.

*In the past **ONE month**, how much of a **problem** has this been for you...*

ABOUT MY HEALTH AND ACTIVITIES *(problems with...)* Never Almost
Never

Sometimes
Often Almost
Always

1. It is difficult for me to walk more than 100 metres 0 1 2 3 4
2. It is difficult for me to run 0 1 2 3 4
3. It is difficult for me to do sports activity or exercise 0 1 2 3 4
4. It is difficult for me to lift something heavy 0 1 2 3 4
5. It is difficult for me to take a bath or shower by myself 0 1 2 3 4
6. It is difficult for me to do help in the house 0 1 2 3 4
7. I feel pain 0 1 2 3 4
8. I have low energy 0 1 2 3 4

ABOUT MY FEELINGS *(problems with...)* Never Almost
Never
Sometimes
Often Almost
Always

1. I feel afraid or scared 0 1 2 3 4
2. I feel sad 0 1 2 3 4
3. I feel angry 0 1 2 3 4
4. I have trouble sleeping 0 1 2 3 4
5. I worry about what will happen to me 0 1 2 3 4

HOW I GET ALONG WITH OTHERS *(problems with...)* Never Almost
Never
Sometimes
Often Almost
Always

1. I have trouble getting along with other kids 0 1 2 3 4
2. Other kids do not want to be my friend 0 1 2 3 4
3. Other kids tease me 0 1 2 3 4
4. I cannot do things that other kids of my age can do 0 1 2 3 4
5. It is difficult to keep up when I play with other kids 0 1 2 3 4

ABOUT SCHOOL *(problems with...)* Never Almost
Never
Sometimes
Often Almost
Always

1. It is difficult to pay attention in class 0 1 2 3 4
2. I forget things 0 1 2 3 4
3. I have trouble keeping up with my schoolwork 0 1 2 3 4
4. I miss school because of not feeling well 0 1 2 3 4
5. I miss school to go to the doctor or hospital 0 1 2 3 4

PedsQL™

Version 4.0 - English (India)

PARENT REPORT for CHILDREN (ages 8-12)

DIRECTIONS

On the following page is a list of things that might be a problem for **your child**. Please tell us **how much of a problem** each one has been for **your child** during the **past ONE month** by circling:

0 if it is **never** a problem

4. Missing school because of not feeling well 0 1 2 3 4
5. Missing school to go to the doctor or hospital 0 1 2 3 4

PedsQL™

Version 4.0 - English (India)

YOUNG CHILD REPORT (ages 5-7)

Instructions for the interviewer:

I am going to ask you some questions about things that might be a problem for some children. I want to know how much of a problem any of these things might be for you.

Show the child the template and point to the responses as you read.

If it is not at all a problem for you, point to the smiling face
If it is sometimes a problem for you, point to the middle face
If it is a problem for you a lot, point to the unhappy face
I will read each question. Point to the pictures to show me how much of a problem it is for you. Let's try a practice one first.

Not at all Sometimes A lot

Is it difficult for you to click your fingers ☺ 😐 ☹

Ask the child to demonstrate snapping his or her fingers to determine whether or not the question was answered correctly. Repeat the question if the child demonstrates a response that is different from his or her action.

Think about how you have been doing for the last few weeks. Please listen carefully to each sentence and tell me how much of a problem this is for you.

After reading the item, gesture to the template. If the child hesitates or does not seem to understand how to answer, read the response options while pointing at the faces.

PHYSICAL FUNCTIONING *(problems with...)* **Not at all Sometimes A lot**

1. Is it difficult for you to walk 0 2 4
2. Is it difficult for you to run 0 2 4
3. Is it difficult for you to play sports or exercise 0 2 4
4. Is it difficult for you to pick up big things 0 2 4
5. Is it difficult for you to take a bath or shower 0 2 4
6. Is it difficult for you to help in the house (like pick up your toys) 0 2 4
7. Do you have hurts or aches (***Where?_____***) 0 2 4
8. Do you ever feel too tired to play 0 2 4

Remember, tell me how much of a problem this has been for you for the last few weeks.

EMOTIONAL FUNCTIONING *(problems with...)* **Not at all Sometimes A lot**

1. Do you feel scared 0 2 4
2. Do you feel sad 0 2 4

1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem
There are no right or wrong answers.
If you do not understand a question, please ask for help.

*In the past **ONE month**, how much of a **problem** has your child had with ...*

PHYSICAL FUNCTIONING ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Walking more than 100 metres 0 1 2 3 4
2. Running 0 1 2 3 4
3. Participating in sports activity or exercise 0 1 2 3 4
4. Lifting something heavy 0 1 2 3 4
5. Taking a bath or shower by him or herself 0 1 2 3 4
6. Doing chores around the house 0 1 2 3 4
7. Having hurts or aches 0 1 2 3 4
8. Low energy level 0 1 2 3 4

EMOTIONAL FUNCTIONING ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Feeling afraid or scared 0 1 2 3 4
2. Feeling sad 0 1 2 3 4
3. Feeling angry 0 1 2 3 4
4. Trouble sleeping 0 1 2 3 4
5. Worrying about what will happen to him or her 0 1 2 3 4

SOCIAL FUNCTIONING ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Getting along with other children 0 1 2 3 4
2. Other kids not wanting to be his or her friend 0 1 2 3 4
3. Getting teased by other children 0 1 2 3 4
4. Not able to do things that other children of his or her age can do
0 1 2 3 4
5. Keeping up when playing with other children 0 1 2 3 4

SCHOOL FUNCTIONING ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Paying attention in class 0 1 2 3 4
2. Forgetting things 0 1 2 3 4
3. Keeping up with school work 0 1 2 3 4

3. Do you feel angry 0 2 4
4. Do you have trouble sleeping 0 2 4
5. Do you worry about what will happen to you 0 2 4

SOCIAL FUNCTIONING *(problems with...)* **Not at all Sometimes A lot**
1. Is it difficult for you to get along with other kids 0 2 4
2. Do other kids say they do not want to play with you 0 2 4
3. Do other kids tease you 0 2 4
4. Can other kids do things that you cannot do 0 2 4
5. Is it difficult for you to keep up when you play with other kids
0 2 4

SCHOOL FUNCTIONING *(problems with...)* **Not at all Sometimes A lot**
1. Is it difficult for you to pay attention in school 0 2 4
2. Do you forget things 0 2 4
3. Is it difficult to keep up with schoolwork 0 2 4
4. Do you miss school because of not feeling good 0 2 4
5. Do you miss school because you have to go to the doctor's or hospital
0 2 4

How much of a problem is this for you?

Not at all Sometimes A lot

PedsQL™

PARENT REPORT for YOUNG CHILDREN (ages 5-7)

DIRECTIONS

On the following page is a list of things that might be a problem for **your child**. Please tell us **how much of a problem** each one has been for **your child** during the **past ONE month** by circling:

0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem

4 if it is **almost always** a problem
There are no right or wrong answers.
If you do not understand a question, please ask for help.

*In the past **ONE month**, how much of a **problem** has your child had with ...*

PHYSICAL HEALTH AND ACTIVITIES ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Walking more than 100 metres 0 1 2 3 4
2. Running 0 1 2 3 4
3. Participating in sports activity or exercise 0 1 2 3 4
4. Lifting something heavy 0 1 2 3 4
5. Taking a bath or shower by him or herself 0 1 2 3 4
6. Doing small work, like picking up his or her toys 0 1 2 3 4
7. Feeling pain 0 1 2 3 4
8. Low energy level 0 1 2 3 4

EMOTIONAL HEALTH ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Feeling afraid or scared 0 1 2 3 4
2. Feeling sad 0 1 2 3 4
3. Feeling angry 0 1 2 3 4
4. Trouble sleeping 0 1 2 3 4
5. Worrying about what will happen to him or her 0 1 2 3 4

SOCIAL ACTIVITIES ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Getting along with other children 0 1 2 3 4
2. Other kids not wanting to be his or her friend 0 1 2 3 4
3. Getting teased by other children 0 1 2 3 4
4. Not able to do things that other children of his or her age can do
   0 1 2 3 4
5. Keeping up when playing with other children 0 1 2 3 4

SCHOOL ACTIVITIES ***(problems with...)*** **Never Almost Never Sometimes Often Almost Always**

1. Paying attention in class 0 1 2 3 4
2. Forgetting things 0 1 2 3 4
3. Keeping up with school activities 0 1 2 3 4
4. Missing school because of not feeling well 0 1 2 3 4
5. Missing school to go to the doctor or hospital 0 1 2 3 4

PedsQL™

Pediatric Quality of Life Inventory

Version 4.0 - English (India)

PARENT REPORT for TODDLERS (ages 2-4)

DIRECTIONS

On the following page is a list of things that might be a problem for **your child**. Please tell us **how much of a problem** each one has been for **your child** during the **past ONE month** by circling:

0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem

There are no right or wrong answers.
If you do not understand a question, please ask for help.

*In the past **ONE month**, how much of a **problem** has your child had with ...*

PHYSICAL HEALTH AND ACTIVITIES *(problems with...)* **Never Almost Never Sometimes Often Almost Always**

1. Walking 0 1 2 3 4
2. Running 0 1 2 3 4
3. Participating in active play or exercise 0 1 2 3 4
4. Lifting something heavy 0 1 2 3 4
5. Bathing 0 1 2 3 4
6. Helping to pick up his or her toys 0 1 2 3 4
7. Feeling pain 0 1 2 3 4
8. Low energy level 0 1 2 3 4

EMOTIONAL HEALTH *(problems with...)* **Never Almost Never Sometimes Often Almost Always**

1. Feeling afraid or scared 0 1 2 3 4
2. Feeling sad 0 1 2 3 4
3. Feeling angry 0 1 2 3 4
4. Trouble sleeping 0 1 2 3 4
5. Worrying 0 1 2 3 4

SOCIAL ACTIVITIES *(problems with...)* **Never Almost Never Sometimes Often Almost**

Always

1. Playing with other children 0 1 2 3 4
2. Other kids not wanting to play with him or her 0 1 2 3 4
3. Getting teased by other children 0 1 2 3 4
4. Not able to do things that other children his or her age can do 0 1 2 3 4
5. Keeping up when playing with other children 0 1 2 3 4

Please complete this section if your child attends school or daycare

SCHOOL ACTIVITIES *(problems with...)* **Never Almost Never Sometimes Often Almost Always**

1. Doing the same school activities as other children 0 1 2 3 4
2. Missing school/daycare because of not feeling well 0 1 2 3 4
3. Missing school/daycare to go to the doctor or hospital 0 1 2 3 4

The Parent Report for Toddlers (ages 2-4) of the **PedsQL**™ 4 .0 Generic Core Scales is composed of 21 items comprising 4 dimensions.

DESCRIPTION OF THE QUESTIONNAIRE:

Dimensions	**Number of Items**	**Cluster of Items**	**Reversed Scoring**	**Direction of Dimensions**
Physical Functioning	8	1-8	1-8	Higher scores indicate better HRQOL.
Emotional Functioning	5	1-5	1-5	
Social Functioning	5	1-5	1-5	
School Functioning	3	1-3	1-3	

SCORING OF DIMENSIONS:

Item Scaling 5-point Likert scale from 0 (Never) to 4 (Almost always)

Weighting of Items

No

Extension of the Scoring Scale

Scores are transformed on a scale from 0 to 100.

Scoring Procedure

Step 1: Transform Score

Items are reversed scored and linearly transformed to a 0-100 scale as follows: 0=100, 1=75, 2=50, 3=25, 4=0.

Step 2: Calculate Scores

Score by Dimensions:

- If more than 50% of the items in the scale are missing, the scale scores should not be computed.
- Mean score = Sum of the items over the number of items answered.

Psychosocial Health Summary Score = Sum of the items over the number of items answered in the Emotional, Social, and School Functioning Scales.

Physical Health Summary Score = Physical Functioning Scale Score

Total Score: Sum of all the items over the number of items answered on all the Scales.

Interpretation and Analysis of Missing Data

If more than 50% of the items in the scale are missing, the Scale Scores should not be computed.

If 50% or more items are completed: Impute the mean of the completed items in a scale.

CHILD and PARENT Reports for Young Children (ages 5-7), Children (ages 8-12), Teens (ages 13-18)

The **Child and Parent Reports** of the **PedsQL**™ 4 .0 Generic Core Scales for:
- Young Children (ages 5-7),
- Children (ages 8-12),
- And Teens (ages 13-18),

are composed of 23 items comprising 4 dimensions.

DESCRIPTION OF THE QUESTIONNAIRE:

Dimensions	**Number of Items**	**Cluster of Items**	**Reversed scoring**	**Direction of Dimensions**
Physical Functioning	8	1-8	1-8	Higher scores indicate better HRQOL.
Emotional Functioning	5	1-5	1-5	
Social Functioning	5	1-5	1-5	
School Functioning	5	1-5	1-5	

SCORING OF DIMENSIONS:

Item Scaling

5-point Likert scale from 0 (Never) to 4 (Almost always)
3-point scale: 0 (Not at all), 2 (Sometimes) and 4 (A lot) for the Young Child (ages 5-7) child report

Weighting of Items

No

Extension of the Scoring Scale Scores are transformed on a scale from 0 to 100.

Scoring Procedure

Step 1: Transform Score

Items are reversed scored and linearly transformed to a 0-100 scale as follows: 0=100, 1=75, 2=50, 3=25, 4=0.

Step 2: Calculate Scores

Score by Dimensions:

- If more than 50% of the items in the scale are missing, the scale scores should not be computed,
- Mean score = Sum of the items over the number of items answered.

Psychosocial Health Summary Score = Sum of the items over the number of items answered in the Emotional, Social, and School Functioning Scales.
Physical Health Summary Score = Physical Functioning Scale Score
Total Score: Sum of all the items over the number of items answered on all the Scales.

Interpretation and Analysis of Missing Data

If more than 50% of the items in the scale are missing, the Scale Scores should not be computed.
If 50% or more items are completed: Impute the mean of the completed items in a scale.